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Juan Carlos Huerta Texas A&M University-Corpus Christi, juan.huerta@tamucc.edu

Jennifer J. Bray Texas A&M University-Corpus Christi, jennifer.bray@tamucc.edu

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# How Do Learning Communities Affect First-Year Latino Students?

# Abstract

Do learning communities with pedagogies of active learning, collaborative learning, and integration of course material affect the learning, achievement, and persistence of first-year Latino university students? The data for this project was obtained from a survey of 1,330 first-year students in the First-Year Learning Community Program at Texas A&M University-Corpus Christi in fall 2005. Using survey data combined with student background characteristics and multivariate analyses, the findings reveal that learning communities had a positive effect on all students' first semester GPA, and that learning community practices, especially collaborative learning, benefit Latino students. The study also proposes a technique for estimating the impact of learning communities on Latino students.

# **Cover Page Footnote**

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# How Do Learning Communities Affect First-Year Latino Students?

Juan Carlos Huerta, Ph.D. Texas A&M University-Corpus Christi

# Jennifer J. Bray, M.A. Texas A&M University-Corpus Christi

Learning communities are recognized as effective for promoting student learning and success. However, the literature has not examined how learning communities affect first-year Latino students. This research examines how learning communities with pedagogies of active learning, collaborative learning, and integration of course material affect student learning, achievement, and persistence of first-year Latino university students. Using survey data combined with student background characteristics and multivariate analyses, the findings reveal that there are learning community practices that seem particularly beneficial for Latino students. The results also provide a technique for estimating the impact of learning communities for Latino students.

There are bodies of research that support why learning communities, with their emphasis on integration of knowledge, collaborative learning, and active learning, are beneficial for students, notably by aiding in persistence and fostering enhanced learning outcomes. There is also persistent evidence that Latino (Latino will be used instead of Hispanic) students are achieving less success in higher education than non-Hispanic white college students (Fry, 2003). The increasing presence of learning communities in institutions of higher learning, coupled with rising enrollments of Latino students, compels an examination of how learning communities may benefit Latino students, and if so, whether or not these benefits are more or less meaningful for Latino students compared to non-Hispanic white students.

Specifically, this paper addresses the following research question: How do learning communities affect first-year Latino students? This research analyzes how learning communities, with an emphasis on active learning, collaborative learning, and integration of course material, affect student learning, achievement, and first-year persistence for first-year Latino university students.

### Literature Review

The benefits of learning communities and their positive impact on student learning outcomes are well established (Bystrom, 1997; Cross, 1998; Gabelnick, MacGregor, Matthews, & Smith, 1990; Huerta, 2004; Smith, MacGregor, Matthews, & Gabelnick, 2004; Taylor, Moore, MacGregor, & Lindblad, 2003). Learning communities have a variety of structures (Washington Center for Improving the Quality of Undergraduate Education, n.d.), thus the focus is not on the structure of the learning communities, but rather on what happens in a learning community. According to Smith et al., learning communities typically (a) aim to foster a sense of community among students and teachers, (b) attempt to create curricular coherence and connections, (c) teach skills in a meaningful context, (d) encourage academic and social connections for students, (e) offer a more intensified learning environment, and (f) provide learning communities for teachers.

Teaching pedagogies in learning communities generally include, but are not limited to, active learning, collaborative learning, and the integration of course material (Smith et al., 2004). Learning communities are also thought to provide an effective forum for dealing with issues of diversity and educational equality, including minority students (Lardner, 2005).

### **Higher Education and Latino Students**

While the Latino population has grown, the educational attainment of Latinos remains relatively low (Zurita, 2004). Additionally, the proportion of Latino students finishing college has not improved even though Latino representation in higher education has increased over the past 20 years (Otero, Rivas, & Rivera, 2007). Furthermore, Latinos have lower graduation rates than other minorities (Otero et al.).

Persistence (also known as retention) is problematic for all student populations, but particularly so for Latino students (Otero et al., 2007; Zurita, 2004). Learning communities have built a strong record for promoting student success and increasing persistence (Gabelnick et al., 1990; Smith et al., 2004). Moreover, learning communities provide an opportunity for professors to reach diverse populations of students (Lardner, 2005). Nonetheless, there is a lack of research into the impact of learning communities for Latino students.

# Learning Community Pedagogies and the Potential Effect for Latino Students

Collaborative learning. The benefits of collaborative learning are well documented (Bruffee, 1993; Kuh, Kinzie, Schuh, & Whitt, 2005; Pascarella & Terenzini, 2005; Smith et al., 2004). Why might collaborative learning be particularly beneficial for Latino students? Group work and collaborative methods have also been found to promote increased tolerance for diversity and student behavior changes that are more accepting and respectful to those who are different (Ventimiglia, 1995). In addition, evidence suggests that Latino students may leave college because they are trying to retain external peer groups (Tinto, 1993). Learning communities may then benefit Latino students because collaborative learning can help them build internal peer groups. Furthermore, through collaboration, learning communities can provide an opportunity for students from different backgrounds to learn about the realities of the lives of other students (Lardner, 2005).

Active learning. Active learning refers to techniques that engage students in meaningful learning activities and reflection (Prince, 2004). With active learning, students are participants in the learning process rather than passive recipients of information. Active learning is a valuable pedagogy for reaching students with diverse learning styles, especially students enrolled in large survey classes (Frederick, 1987; Huerta, 2007; McKeachie, 2002; Meyers & Jones, 2003; Silberman, 1996). Learning communities that place the emphasis on active learning better reach students with diverse learning styles by fostering interactive communication between professor and student (Smith et al., 2004).

Integration of material. A key element of learning communities is the integration of course material from different disciplines (Smith et al., 2004; Thies, 2005). The deliberate integration is expected to bring coherence to the academic experience and is intended to help students to learn that the different academic disciplines are connected. Learning about the different disciplines can also help students gain a deeper understanding of course content because they learn about the material in different contexts. The deliberate efforts at integrating course material may be particularly

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beneficial for students from underrepresented populations-including Latinos.

# Learning Communities and Latinos

While the benefits of learning communities are well documented, there have not been investigations of how they benefit specific groups of students—in this case, Latinos. If learning communities do have benefits for Latinos, which pedagogical components of the learning communities are particularly beneficial? The project examined these issues by investigating the learning community pedagogies of active learning, collaborative learning, and integration of course material and the effect on student learning, achievement, and persistence for first-year Latino students in learning communities.

# **Research Design**

The data for the project was obtained from a survey of first-year students in the First-Year Learning Community Program at Texas A&M University-Corpus Christi (A&M-Corpus Christi), a designated Title V Hispanic-Serving Institution, and was administered at the end of the fall 2005 semester (late November to mid-December). A Web-based survey was used and students completed the survey on their own time outside the classroom. Instructions for completing the survey were distributed by the instructors in the First-Year Learning Community Program; students were offered a chance at winning a gift card to the university bookstore if they successfully completed the survey. According to the official fall 2005 class rosters, there were 1,330 students enrolled in the learning communities of the First-Year Learning Community Program. All of these students were given the opportunity to complete the survey and 437 did for a response rate of 33%. There were likely fewer than 1,330 attending classes at the end of the semester so the response rate of students actually attending is probably higher than 33%. The survey data were supplemented with information about the students from the university's student database.

The First-Year Learning Community Program at A&M-Corpus Christi was established in fall 1994—the semester when the university admitted its initial cohort of first-year students. Prior to fall 1994, the university was an upper division and graduate program university. The learning communities are the linked class model and are comprised of large lecture courses with 150 (up to 275) students divided into first-year seminars of 25 students (six seminars for 150 students with additional seminars if the large lecture class is bigger). The large lecture courses

in the First-Year Learning Community Program are U.S. History to 1865, U.S. History since 1865, U.S. Government and Politics, State and Local Government, General Psychology, Human Societies (sociology), Understanding and Enjoying Music, Biology I, Biology II, General Chemistry I, and General Chemistry II.

The seminars are discussion sections that integrate the material in the learning community. Most of the seminars are also linked to first-year composition (English composition). Learning communities with one large lecture class are known as triads, and those with two large lecture courses are tetrads. All full-time, first-year students enroll in a learning community each regular semester during the first-year.

The research design is based on the work of Terenzini (Terenzini, Springer, Pascarella, & Amaury, 1995). In Terenzini's work, precollege traits and classroom experiences were used to predict student learning outcomes. In addition, the framework takes into consideration the structure of the learning community program at A&M-Corpus Christi, which was designed with teaching strategies that immerse students in an active learning environment with opportunities to learn from each other (collaborative learning) and provide a context to integrate curricular content. This classroom environment is expected to help students achieve core curriculum program learning outcomes, such as improving writing skills, making connections among the courses in the learning community, understanding and approaching issues from different perspectives, and developing academic skills. These learning outcomes are derived from the guidelines provided by the State Higher Education Coordinating Board for core curriculums in state institutions. Learning communities are also expected to lead to improved academic achievement and, hence, improved persistence.

The specific goals of the program investigated in this project were the core curriculum program learning outcomes and achievement. The realization of these goals is expected to lead to higher first-year persistence. GPA and persistence are not program goals; nonetheless, they were investigated because there is an expectation that learning communities improve both. The two largest groups at A&M-Corpus Christi are Latinos and non-Hispanic whites. For the analysis, Latino students were compared to non-Hispanic white students. According to A&M-Corpus Christi data, in fall 2005, 92% of the students were either Latino (Hispanic) or non-Hispanic white (white). Total enrollment was 8,365 students with 55% white and 38% Latino. University data does not distinguish between national origin Latino groups. The assumption is the overwhelming majority of the Latino students are Mexican American. Furthermore, the

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First-Year Learning Community Program does not include any unique Latin culture-based instruction.

The research design was organized into four steps:

- 1. Conducting an analysis of control, independent, and dependent variables.
- 2. Using active learning, collaborative learning, and integration of material as predictors of core learning outcomes and academic achievement.
- 3. Using core learning outcomes and academic achievement to predict first-year persistence.
- 4. Using a regression equation from step 2 to estimate the impact of learning communities on first-semester GPA.

## Latino

The Latino item was of particular interest. The expectation was that it would have an insignificant effect on the dependent variables. The reasoning was that the learning community experience would promote Latino student success. A negative effect would indicate that even with controls for student background characteristics, Latino students were not benefiting from learning communities. Latino students have a value of 1 and non-Hispanic whites 0. Only the Latino and non-Hispanic white students were included because there was not enough variation among the remaining groups of students.

# **Precollege Trait Variables**

For this study, SAT/ACT scores, class rank, Pell Grants, scholarships, and the number of parents with a college degree were included as controls for precollege traits. ACT scores were converted to SAT scores using an equivalency table based on students who take both the SAT and ACT (Dorans, Lyu, Pommerich, & Houston, 1997). Class rank was the student's percentile rank (with lower values representing higher class ranks). Students who received Pell Grants were coded as 1 and those without Pell Grants as 0. Likewise, students receiving either a need-based or merit-based scholarship were coded as 1 and those not receiving scholarships 0. Dichotomous variables were used for scholarships and Pell Grants instead of actual dollar amounts because of the skewed nature of distributing these two items. Finally, the number of parents with a college degree ranged from 0 to 2.

# **Classroom Experiences**

The classroom experiences were measured with survey data. Recognizing that students may not understand survey questions about pedagogy, brief definitions of the various classroom experiences and pedagogies were included in the survey.

Integration of course material. Two items from the survey were used to measure integration. One measure of integration (integration seminar) came from a question asking students if their first-year seminar leader "integrated the material from the other courses in [their] learning community." Another (integration lecture professor) asked students if their large lecture professor "linked assignments and activities to make an integrated learning community." The available responses for the students were "yes," "no," "don't know," and "not applicable." The responses for each item were recoded as dichotomous variables. The coding scheme was 1 for "yes" and 0 for "no" or "don't know." Those who responded "not applicable" or did not answer the question were coded as "missing" and were not included in the analyses. These integration items were not combined into an index because an index of these two items had a Chronbach's Alpha score of .17, and the correlation between these items was .09. Hence, they are distinct measures of integration and will be analyzed separately.

The "no" and "don't know" categories were combined to minimize missing data. If the "don't know" category was assigned to missing data, then each time a student responded "don't know," they risked being dropped from the multivariate analyses because they would be classified as missing. The key was to analyze those who responded "yes" from those who did not. The 1 for "yes" and 0 for "no" or "don't know" coding scheme was used throughout the project.

*Collaborative learning.* An index measuring collaborative learning was created with an item asking students if their seminar leader "helped groups work effectively" and another asking if the First-Year Learning Community Program helped to "improve [their] ability to learn in a group of students." The responses for each item were coded 1 for "yes," and 0 for "no" or "don't know." The index has a maximum value of 2, indicating the student became more proficient at working and learning with others. A minimum value of 0 indicates the student did not become more proficient. The Chronbach's Alpha score is .49.

Active learning. Active learning was measured by asking students if their large lecture professor provided "opportunities for active learning." The response choices were 1 for "yes" or 0 for "no" or "don't know." There was a data problem with the question asking about active learning in the first-year seminar, therefore, only the single large lecture professor item was used to measure active learning.

# Learning Community Goals

*Core curriculum learning outcomes index.* The core curriculum program learning outcomes of improving writing skills, approaching and understanding issues from different perspectives, seeing connections among the learning community courses, and improving academic skills were used to create the core curriculum learning outcomes index. All responses for the items making the index have 0 for "no" or "don't know" or 1 for "yes" for the question, "Did the First-Year Learning Community Program help to. . . ." A value of 0 indicates the student responded "no" to each item while 4 indicates "yes" to each item. The Chronbach's Alpha score is .65.

Achievement—first-year success index. This index measures whether the student believed the learning communities helped them experience success in their first year. It was constructed with items asking students if the First-Year Learning Community Program helped them succeed in their triad/tetrad courses, succeed in their other courses not associated with their learning communities, and if their seminar leader helped them succeed in their first year. The Chronbach's Alpha score is .55.

Achievement—first-semester GPA. Actual first-semester GPAs from fall 2005 students were added to the survey. The range is 0–4.

*First-Year Persistence.* First-year persistence was measured by identifying the students from the fall 2005 survey who enrolled (and made the official class rosters) in fall 2006. Students who enrolled for their second year were coded as 1, and those who did not as 0.

# Analyses

#### Step 1: Means Analysis

The sample used for the analyses includes only first-year Latino and non-Hispanic white students. According to the results in Table 1, 41% in the survey are Latino and 59% are white. A means analysis of the precollege trait, classroom experience, and learning community goal variables is presented in **Table 1.** The .05 level or less is considered statistically significant.

# Table 1

Means Analysis

	Overall	Latino	White
% Latino or white		41	59
Precollege traits			
% Parents with college degrees	52	40**	61
% Scholarship	38	40	36
% Pell Grant	33	52**	20
SAT/ACT	1007	929**	1061
Class rank (percentile)	26	23**	28
Classroom experiences			
Integration seminar (0, 1)	.88	.89	.88
Integration lecture professor $(0, 1)$	.86	.85	.85
Collaborative learning index (0-2)	1.70	1.80*	* 1.63
Active learning $(0, 1)$	.82	.85	.80
Learning community outputs			
Core learning goals (0-4)	3.31	3.49*	* 3.18
Academic success (0-3)	2.15	2.23	2.08
First-semester GPA (0-4)	2.8	2.6**	<sup>5</sup> 2.9
% First-year persistence	70.0	68.0	71.0
Number of cases	378	155	223

\* = .05 significance

**\*\*** = .01 significance

*Precollege traits.* Among the precollege traits, there are significantly fewer Latino students than non-Hispanic white students with at least one parent with a college degree (40% to 61%) and a greater percentage of Latino students who are Pell Grant recipients (52% to 20%). Furthermore, Latinos have lower mean SAT/ACT scores (929 to 1061), and better class ranks (23rd percentile compared to 28th).

Classroom experiences. The only statistically significant difference (.01 level) between Latino and white students among classroom experiences is with collaborative learning. Latinos have a mean value of 1.8 and whites 1.6.

Learning community goals and persistence. Latinos have a significantly higher mean score on the core learning goals index (3.49 compared to 3.18). Another significant difference is first-semester GPA—Latinos have a lower mean GPA (2.6) than whites (2.9). The difference in persistence is not statistically significant.

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### **Step 2: Learning Community Goals**

Student learning. The first step of the analysis of how learning communities affect Latino students was examining the predictors of the core curriculum learning outcomes index. The precollege traits were included as control variables in a model that also included classroom experiences. The model is presented in **Equation 1**.

#### **Equation 1**

**Core curriculum learning outcomes index** = SAT/ACT + class rank + Pell Grant + scholarship + parents with college degree + Latino + integration seminar + integration lecture professor + collaborative index + active learning

The results of **Equation 1** are presented in the core curriculum learning outcomes index column of **Table 2**.

The precollege traits are generally not having an effect on the learning outcomes. Only the SAT/ACT has a significant effect, and it is negative. This suggests that the learning communities provide an extra benefit to students with lower SAT/ACT scores. This can benefit Latino students because they have lower mean SAT/ACT scores than white students. The Latino item is insignificant. Unlike the precollege traits, which do not indicate significant impacts on learning outcomes, the integration items and collaboration index have significant and positive impacts. Active learning fails to have a statistically significant impact.

Achievement. The next step of the analysis used the achievement items as the dependent variables. The first-year success index model is specified in Equation 2 and the first-semester GPA model is in Equation 3. The results for both equations are presented in Table 2.

#### **Equation 2**

**First-year success index** = SAT/ACT + class rank + Pell Grant + scholarship + parents with college degree + Latino + integration seminar + integration lecture professor + collaborative index + active learning

#### **Equation 3**

**First-semester GPA** = SAT/ACT + class rank + Pell Grant + scholarship + parents with college degree + Latino + integration seminar + integration lecture professor + collaborative index + active learning

# Table 2

Core Learning Outcomes, Academic Success Index, and First Semester GPA

Learning Outcomes         Success Index         Semester GPA           Student background char- acteristics         2.75**        54         1.88**           Student background char- acteristics        6        6        6           Parents with college        6        6        6           Gegrees        7        6        6           Scholarship        6        6        6           SAT/ACT        6        6        6           Class rank        6        6        6		Core	Academic	First
Outcomes         Index         GPA           Constant         2.75**        54         1.88**           Student background char- acteristics			Success	Semester
Student background char- acteristics         Image: Mark Structure         Image: Mark Structure           Parents with college         .09        05         .09           degrees         (.07)         (04)         (.08)           Scholarship         .08         .00         .25**           (.04)         (.00)         (.14)           Pell Grant        04        16        25**           (02)         (08)         (13)           SAT/ACT        002**        00         .001**           (23)         (08)         (.16)           Class rank        00        00         .01**           (-02)         (03)         (26)           Latino         .02         .02        17           (.01)         (.01)         (.01)         (09)           Classroom experiences         Image: Mark Structure         .62**        15           Integration lecture         .63**         .58**         .15           professor         (.20)         (.22)         (.06)           Collaborative learning         .51**         .19*           index         (.39)         (.30)         (.12)           Active		U U	Index	GPA
acteristics         .09         .05         .09           Parents with college         .09         .05         .09           degrees         (.07)         (04)         (.08)           Scholarship         .08         .00         .25**           (.04)         (.00)         (.14)           Pell Grant        04        16        25**           (02)         (08)         (13)           SAT/ACT        002**        00         .001**           (23)         (08)         (.16)           Class rank        00        00        01**           (.101)         (.01)         (.01)         (09)           Latino         .02         .02        17           (.01)         (.01)         (.01)         (09)           Classroom experiences	Constant	2.75**	.54	1.88**
Parents with college degrees         .09        05         .09           degrees         (.07)         (04)         (.08)           Scholarship         .08         .00         .25**           (.04)         (.00)         (.14)           Pell Grant        04        16        25**           (02)         (08)         (13)           SAT/ACT        002**        00         .001**           (23)         (08)         (.16)           Class rank        00        00         .01**           (-02)         (03)         (26)           Latino         .02         .02        17           (.01)         (.01)         (.01)         (09)           Classroom experiences           .02         .02           Integration seminar         .71**         .62**        15         .15           professor         (.20)         (.22)         (.06)           Collaborative learning         .51**         .19*         .19*           index         (.39)         (.30)         (.12)           Active learning         .12         .36**         .03	Student background char-			
degrees         (.07)         (04)         (.08)           Scholarship         .08         .00         .25**           (.04)         (.00)         (.14)           Pell Grant        04        16        25**           (02)         (08)         (13)           SAT/ACT        002**        00         .001**           (23)         (08)         (.16)           Class rank        00        00        01**           (02)         (03)         (26)           Latino         .02         .02        17           (.01)         (.01)         (.01)         (09)           Classroom experiences	acteristics			
Scholarship         .08         .00         .25**           (.04)         (.00)         (.14)           Pell Grant        04        16        25**           (02)         (08)         (13)           SAT/ACT        002**        00         .001**           (-23)         (08)         (.16)           Class rank        00        00        01**           (-02)         (03)         (26)           Latino         .02         .02        17           (.01)         (.01)         (.01)         (09)           Classroom experiences	Parents with college	.09	05	.09
Image: constraint of the system         (.04)         (.00)         (.14)           Pell Grant        04        16        25**           (02)         (08)         (13)           SAT/ACT        002**        00         .001**           (23)         (08)         (.16)           Class rank        00        00        01**           (02)         (03)         (26)           Latino         .02         .02        17           (.01)         (.01)         (09)           Classroom experiences	degrees	(.07)	(04)	(.08)
Pell Grant      04      16      25**         (02)       (08)       (13)         SAT/ACT      002**      00       .001**         (23)       (08)       (.16)         Class rank      00      00      01**         (02)       (03)       (26)         Latino       .02       .02      17         (.01)       (.01)       (.01)       (09)         Classroom experiences	Scholarship	.08	.00	.25**
(02)         (08)         (13)           SAT/ACT        002**        00         .001**           (23)         (08)         (.16)           Class rank        00        00        01**           (02)         (03)         (26)           Latino         .02         .02        17           (.01)         (.01)         (.01)         (09)           Classroom experiences	_	(.04)	(.00)	(.14)
SAT/ACT      002**      00       .001**         (23)       (08)       (.16)         Class rank      00      00      01**         (02)       (03)       (26)         Latino       .02       .02      17         (.01)       (.01)       (.01)       (09)         Classroom experiences	Pell Grant	04	16	25**
(23)(08)(.16)Class rank000001**(02)(03)(26)Latino.02.0217(.01)(.01)(.01)(09)Classroom experiencesIntegration seminar.71**.62**15(.23)(.22)(06)Integration lecture.63**.58**.15professor(.20)(.22)(.06)Collaborative learning.51**.51**.19*index(.39)(.30)(.12)Active learning.12.36**.03(.05)(/15)(.00).00Number of cases316319345Adjusted R-square.35.33.21		(02)	(08)	(13)
Class rank      00      00      01**         (02)       (03)       (26)         Latino       .02       .02       .17         (.01)       (.01)       (.01)       (09)         Classroom experiences           Integration seminar       .71**       .62**      15         (.23)       (.22)       (06)         Integration lecture       .63**       .58**       .15         professor       (.20)       (.22)       (.06)         Collaborative learning       .51**       .51**       .19*         index       (.39)       (.30)       (.12)         Active learning       .12       .36**       .03         (.05)       (/15)       (.00)       .00         Number of cases       316       319       345         Adjusted R-square       .35       .33       .21	SAT/ACT	002**	00	.001**
(02)       (03)       (26)         Latino       .02       .02      17         (.01)       (.01)       (.01)       (09)         Classroom experiences       (.01)       (.01)       (09)         Integration seminar       .71**       .62**      15         (.23)       (.22)       (06)         Integration lecture       .63**       .58**       .15         professor       (.20)       (.22)       (.06)         Collaborative learning       .51**       .51**       .19*         index       (.39)       (.30)       (.12)         Active learning       .12       .36**       .03         (.05)       (/15)       (.00)         Number of cases       316       319       345         Adjusted R-square       .35       .33       .21		(23)	(08)	(.16)
Latino       .02       .02       .17         (.01)       (.01)       (.01)       (09)         Classroom experiences           Integration seminar       .71**       .62**      15         (.23)       (.22)       (06)         Integration lecture       .63**       .58**       .15         professor       (.20)       (.22)       (.06)         Collaborative learning       .51**       .51**       .19*         index       (.39)       (.30)       (.12)         Active learning       .12       .36**       .03         (.05)       (/15)       (.00)         Number of cases       316       319       345         Adjusted R-square       .35       .33       .21	Class rank	00	00	01**
(.01)       (.01)       (09)         Classroom experiences       (.01)       (09)         Integration seminar       .71**       .62**      15         (.23)       (.22)       (06)         Integration lecture       .63**       .58**       .15         professor       (.20)       (.22)       (.06)         Collaborative learning       .51**       .51**       .19*         index       (.39)       (.30)       (.12)         Active learning       .12       .36**       .03         (.05)       (/15)       (.00)       .001         Number of cases       316       319       345         Adjusted R-square       .35       .33       .21		(02)	(03)	(26)
Classroom experiences	Latino	.02		17
Integration seminar       .71**       .62**      15         (.23)       (.22)       (06)         Integration lecture       .63**       .58**       .15         professor       (.20)       (.22)       (.06)         Collaborative learning       .51**       .51**       .19*         index       (.39)       (.30)       (.12)         Active learning       .12       .36**       .03         (.05)       (/15)       (.00)         Number of cases       316       319       345         Adjusted R-square       .35       .33       .21		(.01)	(.01)	(09)
(.23)       (.22)       (06)         Integration lecture       .63**       .58**       .15         professor       (.20)       (.22)       (.06)         Collaborative learning       .51**       .51**       .19*         index       (.39)       (.30)       (.12)         Active learning       .12       .36**       .03         (.05)       (/15)       (.00)         Number of cases       316       319       345         Adjusted R-square       .35       .33       .21	Classroom experiences			
Integration lecture         .63**         .58**         .15           professor         (.20)         (.22)         (.06)           Collaborative learning         .51**         .51**         .19*           index         (.39)         (.30)         (.12)           Active learning         .12         .36**         .03           (.05)         (/15)         (.00)           Number of cases         316         319         345           Adjusted R-square         .35         .33         .21	Integration seminar	.71**	.62**	15
professor         (.20)         (.22)         (.06)           Collaborative learning         .51**         .51**         .19*           index         (.39)         (.30)         (.12)           Active learning         .12         .36**         .03           (.05)         (/15)         (.00)           Number of cases         316         319         345           Adjusted R-square         .35         .33         .21	_	(.23)	(.22)	(06)
Collaborative learning index       .51**       .51**       .19*         Active learning       .12       .36**       .03         (.05)       (/15)       (.00)         Number of cases       316       319       345         Adjusted R-square       .35       .33       .21	Integration lecture	.63**	.58**	.15
index         (.39)         (.30)         (.12)           Active learning         .12         .36**         .03           (.05)         (/15)         (.00)           Number of cases         316         319         345           Adjusted R-square         .35         .33         .21	professor	(.20)	(.22)	(.06)
Active learning         .12         .36**         .03           (.05)         (/15)         (.00)           Number of cases         316         319         345           Adjusted R-square         .35         .33         .21	Collaborative learning	.51**	.51**	.19*
(.05)         (/15)         (.00)           Number of cases         316         319         345           Adjusted R-square         .35         .33         .21	index	(.39)	(.30)	(.12)
Number of cases         316         319         345           Adjusted R-square         .35         .33         .21	Active learning	.12	.36**	.03
Adjusted R-square .35 .33 .21	-	(.05)	(/15)	(.00)
U I I I I I I I I I I I I I I I I I I I	Number of cases	316	319	345
	Adjusted R-square	.35	.33	.21
<b>Standard error</b> .82 .74 .78	Standard error	.82	.74	.78
of the estimate	of the estimate			

\* = .05 significance \*\* = .01 significance

The Latino item again failed to achieve statistical significance in either model. Furthermore, none of the precollege trait controls had a significant effect on the first-year success index. However, scholarship, Pell Grant, SAT/ACT, and class rank all had significant effects on GPA. Students with scholarships, without Pell Grants, with higher SAT/ACT scores, and with better class ranks are all expected to have higher firstsemester GPAs. In neither model does the Latino item achieve statistical significance.

The classroom experience items all had significant, positive impacts on first-year success. Students who experience integration, active learning, and collaborative learning are all more likely to have higher self-reported first-year success. Collaborative learning has a significant and positive effect on first-semester GPA.

The evidence reveals that classroom experiences do have a positive and significant impact on the learning community goals. Furthermore, the collaborative learning item is significant and positive in all three models. The Latino item was insignificant throughout the analysis.

## **Step 3: First-Year Persistence**

The final step in the analysis was to use the core learning outcome index, first-year success index, and first-semester GPA to predict persistence. Two logistic regression models were analyzed. One includes all the precollege traits, including the Latino item, as control variables. The second model only included the precollege traits that were not significant predictors of the core learning outcome index, first-year success index, and first-semester GPA. The reasoning for doing this was that it may be inappropriate to include the core learning outcome index, first-year success index, and first-semester GPA as independent variables with items that are significant predictors of the core learning outcome index, first-year success index, and first-semester GPA. The logistic regression models are presented in **Equations 4 and 5**, and the results are presented in **Table 3**.

### **Equation 4**

First-year persistence = SAT/ACT + class rank + Pell Grant + scholarship + parents with college degree + Latino + core learning outcomes + first-year success + first-semester GPA

### **Equation 5**

First-year persistence = parents with college degree + Latino + core learning outcomes + first-year success + first-semester GPA

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# Table 3

First Year Persistence

	EQ4	EQ5
	В	В
	Exp(B)	Exp(B)
Constant	-3.39*	-2.80**
	(.03)	(.06)
Student background characteristics		
Parents with college degrees	.00	03
	(1.00)	(.97)
Scholarship	.11	
_	(1.11)	
Pell Grant	.13	
	(1.14)	
SAT/ACT	.00	
	(1.00)	
Class rank	00	
	(1.00)	
Latino	.10	.04
	(1.11)	(1.04)
Learning community outcomes		
First-semester GPA	1.10**	1.19**
	(3.00)	(3.30)
Core learning outcomes	.19	.15
	(1.21)	(1.16)
Academic success	07	04
	(.94)	(.96)
Number of cases	289	309
Cox and Snell R-square	.17	.19
Nagelkerke R-square	.24	.26
* = 05 significance		

\* = .05 significance

**\*\*** = .01 significance

In both models, the only item having a significant effect on persistence is first-semester GPA. Once again, the Latino item failed to achieve statistical significance. Furthermore, all the precollege trait control variables were insignificant in both models.

The logistic regression results from **Equation 5** were used to calculate the marginal effect of GPA on the probability of persistence at the sample mean (Pampel, 2000). The proportion of the fall 2005 cohort returning in fall 2006 is .70 and .30 for not returning. The logistic regression coefficient for GPA is 1.19. Multiplying the proportion of students returning (.70) by the proportion not returning (.30) by the GPA coefficient (1.19) equals .25. This means a .1 increase in GPA increases the probability of persistence by 25% at the mean probability of persistence.

# Step 4: Impact of Learning Communities on First-Semester GPA

The regression model used to predict first-semester GPA allows for an estimation of GPAs with and without learning communities. Recall that at A&M-Corpus Christi, all full-time, first-year students enroll in learning communities so there is not a natural control group. Hence, the impact of the learning communities must be estimated. Taking the significant results from the third column of **Table 2** (GPA model) yields **Equation 6**:

> Equation 6 First-semester GPA = 1.88 + collaborative learning (.19) + SAT/GPA (.001) + class rank (-.01) + scholarship (.25) + Pell Grant (-.25)

Setting the value of the collaborative learning index at 0 (minimum value) provides an estimate of GPA as if there is not a learning community. Setting the value at 2 (maximum index value) provides an estimate with a positive learning community experience. Thus, the value for collaborative learning can be changed yielding different estimates for first-semester GPA. The other learning community items are not included because they failed to achieve statistical significance for predicting first-semester GPA. The results of the predicted first-semester GPAs are presented in **Table 4**.

The results from **Table 4** in the predicted fall GPA column demonstrate a predicted fall 2005 GPA of 3.0 when the collaborative learning index is set at 2 and 2.6 when it is set at 0 (all other values are set at the sample mean). The difference between the predicted GPAs is .4. The finding suggests the learning communities increase fall semester GPA up to .4 grade points.

# Table 4

Estimated First Semester GPA

# Fall 2005

	Pre- dicted Fall GPA	Collab- oration Index	Class Rank	SAT/ ACT	Scholar- ship	Pell Grant
Latino & white						
	2.9	1.7	26	1007	0.38	0.33
	3.0	2	26	1007	0.38	0.33
	2.8	1	26	1007	0.38	0.33
	2.6	0	26	1007	0.38	0.33
Actual GPA	2.8					
Latino only						
	2.9	1.8	23	929	0,4	0,52
	2.9	2	23	929	0,4	0,52
	2.7	1	23	929	0,4	0,52
	2.5	0	23	929	0,4	0,52
Actual GPA	2.6					

Findings are also presented in **Table 4** for Latino students. Using the same methodology (with the sample mean values for Latino students) yields a .4 difference in GPA. The model estimates a 2.5 first-semester GPA for Latino students with collaborative learning set at 0 and 2.9 when the index is set at 2.

Recall that a .1 increase in GPA increases the probability of firstyear persistence by 25% at the mean probability. Thus, increasing GPA will increase the probability of a first-year student returning for his or her second year. This is noteworthy because the mean difference between Latino and white GPA is statistically significant, but the persistence rate,

while higher for whites, is insignificant (Table 1).

**Implications of Findings** 

The Latino item was of particular interest to the research. The expectation was that the Latino item would be either insignificant or significant with a positive effect. The results show that the Latino item failed to reach statistical significance in any analysis. This suggests that Latinos. when controlling for precollege traits, perform as well as white students in measured categories of student learning, achievement, and persistence. In addition, the evidence demonstrates that higher first-semester GPAs lead to higher persistence rates. Finally, the learning communities contribute an estimated .4 points to first-semester GPA.

Learning community classroom experiences, especially collaborative learning, benefit Latinos. Recall from Table 1 that Latinos have a higher (and statistically significant) mean value for collaborative learning than whites. Also, recall that collaborative learning is positive and significant in all the regressions from Table 2. The evidence indicates collaborative learning is powerful; moreover, Latinos are more likely to report that they experienced collaborative learning than whites. Likewise, collaborative learning can impact GPA, and GPA impacts persistence. The classroom experience that seems to have the broadest impact is collaborative learning, and Latinos seem especially to benefit from it.

What is it about collaborative learning and Latinos? Perhaps Latinos arrive at college with less collaborative learning experience. A learning community environment that immerses Latinos in a collaborative learning environment would then provide important benefits for Latino students. In addition, collaborative learning may help Latino students to develop meaningful connections to other students resulting in a support network that benefits them both academically and socially. There are not suitable items in the existing survey to investigate these possibilities. Hence, a future research endeavor will be to investigate more deeply the link between collaborative learning and Latino students.

## Conclusion

The evidence indicates learning communities do benefit Latino students and not at the expense of non-Hispanic whites. Furthermore, Latino students seem especially to benefit from collaborative learning. The implication of higher Latino GPAs as a result of this learning experience is notable, given the issue of Latino matriculation in higher education. This study provides evidence that the impact of learning communities for Huerta and Bray: How Do Learning Communities Affect First-Year Latino Students?

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Latino students is positive.

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