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THROUGH THE PIPELINE: THE ROLE OF FACULTY IN PROMOTING ASSOCIATE DEGREE COMPLETION AMONG HISPANIC STUDENTS

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The community college has been identified as the primary educational pipeline for Hispanic students' entry into higher education. The vast majority of research has focused on this pipeline in terms of transfer to baccalaureate institutions. Yet, the educational goal for many students is a sub-baccalaureate credential or the associate's degree. The study reported in this article provides a preliminary investigation on the pipeline leading to a certificate or associate of applied science degree. Faculty interaction was identified as one of the key factors in moving Hispanic students through the pipeline. Interviews with faculty identified as exemplars in facilitating Hispanic student success in technical and occupational programs at an HSI community college are incorporated with the existing literature and student interviews to identify areas for future study.

Hispanic undergraduate enrollment in higher education increased by 98% during the decade 1985 to 1995 (Nettles & Perna, 1997). Most (57%) of the Hispanic enrollment in higher education is at community colleges (Wilds, 2000), and the community college has been described as the pipeline for Hispanics' entry into higher education (Laden, 1992, 2001; Rendon & Nora, 1989). Most often the pipeline refers to transfer from community colleges to four-year institutions. Yet for many students the associate's degree or a sub-baccalaureate credential is the primary educational goal (Grubb, 1996; Rendon & Nora, 1989). In a recent study of 100,000 community college credit students (VanDerLinden, 2002) respondents indicated multiple reasons for

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enrolling at a community college. The largest group in this study (29%) indicated that the primary reason for attending the community college was to prepare for a future career. Among this group, 63% wanted to obtain an associate's degree and 10% indicated the goal of completing a sub-baccalaureate program.

According to the National Center for Education Statistics (2002), the five highest number of certificates awarded in 1999–2000 were in the areas of health professions and related sciences (31,945), business management and administrative services (19,024), protective services (9,633), computer and information sciences (8,984), and transportation and material moving workers (8,560). These individuals did not complete a degree, but did attain a particular educational goal. These certification figures indicate that community colleges have assumed the major responsibility for preparing mid-skilled workers (Carnevale, 2000; Carnevale & Desrochers, 2001).

While the community college has provided expanded access for Hispanic students, data concerning associate degree completion present a different picture. Hispanics represented 7% of all associate degree recipients in 1997 and overall students of color realized only a 4% increase in the number of associate degrees awarded from 1987 to 1997 (American Council on Education, 2000). Compared to their substantial numbers in community colleges, Hispanics remain under-represented in the number of degrees awarded.

Our interest in this study is the educational pipeline leading to completion of a sub-baccalaureate credential or the associate degree. To date, the vast majority of research studies have examined leakage in the pipeline from the baccalaureate transfer perspective. The results of these studies, however, point to three factors that contribute to Hispanic student persistence at the community college: (1) finances and financial aid, (2) academic support services provided by the institution, and (3) interactions with faculty. Our review of the literature on Hispanic student retention and educational goal achievement is limited to these three areas.

Cibik and Chambers (1991) identified finances and financial aid as first-order concerns for minority students. Rendon and Valadez (1993) pointed out that the older son of less wealthy Hispanic families has the obligation to support his family, therefore he is often expected to forego education after high school. Responses from Hispanic students enrolled in community colleges with large Hispanic enrollments in Texas, Arizona, and California (Rendon, Justiz, & Resta, 1988) revealed having to work to help the family survive and financial pressures as barriers to transfer to a baccalaureate institution. A study by Nora (1990) found that Hispanic community college students who received

higher levels of financial aid in the form of grants enrolled in more semesters, earned more credit hours, and received some type of credential.

The need for academic support services is most often a result of poor academic preparation. A number of studies have found that many minority students enter college with academic deficiencies (Belcher, 1992; McGregor, Reece, & Garner, 1997; Ramirez & Thayer, 1989; Rendon, 1995; Smith, 1990). One explanation for these deficiencies is that minorities have been found in disproportionate numbers in vocational, general, and non-college tracks in high school (Lee & Bryk, 1988; Oakes, 1985). As a result, Latinos and other culturally diverse students often enter the higher education pipeline through remedial or developmental courses (Reyes, 2001). English as a Second Language (ESL) is often another necessary academic support program. Rosenthal (1990) outlined an innovative strategy that involves students completing ESL courses to develop their English proficiency while at the same time completing general education courses taught in Spanish. Thus, the students can earn college credit while developing skills. Elvin and Wood (1989) stressed the importance of empowering students by providing increased knowledge of campus resources, such as the library, computer labs, academic advising, and testing centers.

A final key to moving Hispanic students through the pipeline is the community college faculty. Faculty members appear to play an important role in transfer to four-year institutions. Rendon, Justiz, and Resta (1988) identified minimal faculty-student interaction as a barrier to transfer and Alvarez (1984) found the lack of teacher encouragement as a problem related to transfer. After examining the transfer rates of 395 community colleges, Brawer (1995) reported that more students transfer when faculty members actively endorse and encourage transfer. Laden (1992) found that faculty played a vital role in successfully preparing Hispanic students to transfer to four-year institutions.

It also appears that faculty play an important role in retention. The Colorado State Advisory Committee (1995) identified "quality" interaction with faculty as a factor of importance in determining minority student persistence. Another study identified the lack of interaction with Hispanic faculty as the primary cofactor of Hispanic student attrition (Jaramillo, 1992).

This third area, the importance of faculty, is the focus of our study. Although identified as a key factor in the educational progress of Hispanic students, specific aspects of faculty behavior have not been examined. What level of education (certificate, associate's degree, transfer to baccalaureate institution) do faculty members emphasize

when speaking with prospective Hispanic students? What are the techniques or strategies that faculty incorporate to move students through the pipeline? Are the techniques and strategies incorporated by faculty in vocational programs similar to those of transfer faculty found in the literature?

Our study was an introductory exploration of the actions of vocational faculty at an HSI community college where faculty had previously been identified as the most important influence in the educational decisions of Hispanic students.

METHODOLOGY

In this study we utilized a case study approach involving qualitative methods. The faculty members interviewed for the study were employed by an HSI in a suburban location in Texas. The Fall 2002 enrollment at this institution was 4,953 (headcount), 39.7% of the headcount is Hispanic. Less than 5% of the faculty at this institution are Hispanic. The largest number of students at this institution were enrolled in majors in the technical/occupational division. For the 2000–2001 academic year, Hispanic students received 36.9% of all certificates and associate degrees awarded by the college. Moreover, previous research revealed that faculty at this college, rather than administrators, staff, family, or peers, were the most important influence on the educational decisions of the Hispanic students (Cejda, Rhodes, and Casparis, 2002). In this previous study we defined educational decisions as: the decision to enroll in the community college, the decision to continue at the community college (should the individual consider dropping out), the decision to earn a certificate or an associate's degree, the decision to transfer to a baccalaureate institution, and the decision to select a major or field of study.

To conduct the interviews for this study, we used the general interview guide approach (Patton, 1980). In this approach a list of questions or issues are outlined so that basically the same information is gathered from each respondent. The interviewer is free to develop questions spontaneously and to establish a conversational style, as long as the focus remains on the predetermined subject areas. With the general interview guide approach we were not limited completely to the guide, thus allowing us to move beyond mere reporting to probing responses regarding the individuals who influenced the educational decisions. Interviews were scheduled at the HSI at times convenient to the participants. Voice recordings are considered the least distracting and most comprehensive method of collecting interview data (Strauss & Corbin, 1990). After securing participant

permission, we tape recorded the interviews, with notes taken during the interview serving as backup. An independent party transcribed recordings and field notes as soon as possible after each interview.

The software NUD*IST (Qualitative Solutions and Research, 1997) was used to aid in data analysis. This software assists in segmenting the interview content into text units representing discrete incidents, ideas, or events. Each text unit was coded as a node representing a main category or as a subcategory of the node. The nodes were then placed in a hierarchical order, creating an index tree. Common patterns or themes were identified from the index trees in the final step of data analysis. Themes both describe and explain phenomenon (Gall, Borg, & Gall, 1996). These themes allowed the making of plausible linkages among the data and the empirical and descriptive literature.

To identify faculty members, we began by reviewing 30 interviews we had previously completed with Hispanic students attending the college. Among the 30 Hispanic students, 29 were enrolled in programs in the technical/occupational division. Of these 29, only 4 had the goal of earning an associate's degree when they enrolled in this community college. The remaining 25 were focused on completing either a level one or level two certificate. More than one-half of these individuals (16) decided to complete the associate's degree after enrolling at the community college. Overwhelmingly, the students indicated that faculty members were the primary influence in their decisions to remain enrolled and complete the certificate or degree.

At our request, the students did not identify faculty during their interviews. We compiled a list of the techniques and behaviors that students reported. After explaining the purpose of this study, we provided the list to the instructional administrators at the institution. The administration identified three faculty members from the technical/occupation division whom they believed were exemplars of faculty influence on Hispanic students and whose techniques and behaviors were obvious from the descriptions we had provided. Each of the faculty members, two females and one male, agreed to be interviewed. One of the female faculty identified herself as Hispanic.

Four questions guided the interview process:

1. When speaking with current or perspective Hispanic students about your program, do you emphasize a certificate, the associate's degree, or transfer [to baccalaureate] programs?
2. What do you do to facilitate the retention or persistence of Hispanic students?

3. How do you identify the Hispanic students you promote or encourage to move through the pipeline, from enrollment to certificate to associate's degree to transfer?
4. What do you do to encourage students to move through the pipeline?

The three faculty members represented three respective programs: early childhood, computer science, and automotive technology. Each program offers two levels of certificates and the associate of applied science degree. The first level certificate does not require state mandated testing to enroll in the college-level courses and it consists of 30 to 40 credit hours. The second level certificate requires between 45 to 55 credit hours.

FINDINGS AND DISCUSSION

Theme 1: Transfer of Credit and Access to Baccalaureate Programs are Barriers to Continuing the Pipeline Beyond the Associate of Applied Science Degree

Although our questions were not focused on the transfer pipeline, the initial response of each of the faculty members to our first question was an elaboration of the problems related to transferring to a baccalaureate institution. No senior institution in the state accepted credits from the early childhood program. The early childhood faculty member pointed out that she provides a warning concerning the lack of transfer when speaking with prospective students and during the first class in the program. There is a senior institution in another part of the city that accepts a few of the credit hours from the computer science program. The computer science faculty member indicated that the primary focus in her initial interactions with potential students was to highlight the curricular differences between the associate degree at her institution and the bachelor's degree at the senior institution. As these program and degree differences were described to students, she also pointed out their impact on students' future career marketability. A four-year institution in the state accepts the majority of credits in the automotive technology program, but the faculty member could remember only a few students who had ever transferred. He stressed that Hispanic students did not wish to leave their home or family, even if only to continue their education for a couple of years.

This theme supports comments from our student interviews. As mentioned earlier, 16 of the 29 students we interviewed indicated that they were going to complete the associate degree. None of these Hispanic students planned to transfer to a baccalaureate institution

immediately after completing the degree. Six indicated the lack of access to a program as a reason to not transfer. Five indicated the loss of credits in the transfer process as a reason to not continue their education. Another five students indicated no aspiration to the baccalaureate degree as a reason to not continue their education.

Theme Two: A Sub-Baccalaureate Credential Serves as the Primary Entry Port

Each of the three faculty members pointed to the certificate programs as "stepping stones" to the associate degree. As mentioned earlier, the first level certificate does not require state mandated testing to enroll in college-level coursework. The computer science and automotive technology faculty members pointed to the mathematics requirement for the associate degree and math anxiety among students as reasons for taking a stepping stone approach. The early childhood faculty member indicated that the level one certificate allowed students to take courses in the early childhood program while also taking needed developmental courses. Each of the faculty members also stressed to students the employment benefits (i.e., entry to the profession as well as income) associated with completing the respective certificates.

This theme supports the literature concerning Latinos and other minority students and the academic deficiencies they may bring with them to the community college (Belcher, 1992; McGregor et al., 1997; Ramirez & Thayer, 1989; Rendon, 1995; Smith, 1990). It further supports the contention that the pipeline for these students often begins with remedial or developmental courses (Reyes, 2001) (also see Marwick, this issue). The practice of taking developmental and college-level courses at the same time is similar to the program outlined by Rosenthal (1990).

Theme Three: Mentoring is a Key to Hispanic Student Retention

Only one of the faculty members specifically used the word "mentoring" to describe the activities this individual does with Hispanic students. Nevertheless, phrases used by all three faculty members to describe their strategies or techniques for improving Hispanic student retention and persistence were fundamental to mentoring as noted by Evanoski (1988) and Otto (1994). The faculty strategies included serving as role models, providing practical day-to-day advice, developing

trust with the students, serving as guides to the field, and assisting Hispanic students with employment.

It is important to note that each faculty member spoke of the importance of cultural sensitivity in facilitating the retention and persistence of Hispanic students. The female Hispanic faculty member had become known in the HSI as an individual who served as a role model for a significant number of Hispanic students. She emphasized that her image as a role model was primarily based on her understanding of the cultural difficulties of Hispanics who attend college. The non-Hispanic faculty also mentioned the importance of being culturally aware of the students and their needs. A key component of this awareness emerged in their comments that focused on differences in the learning styles of Hispanic students. Specific examples included students' active participation in classes, the desire for frequent feedback, preference for working collaboratively in groups, and building on previously learned material and success.

This third theme supports the literature on mentoring as a key strategy to improve the retention and persistence of Hispanic students. One of the more recognized curricular and mentoring programs that includes cultural awareness is The Puente Project in California community colleges. The Puente Project incorporates three critical aspects. These are: (1) a year of intensive freshmen English that focuses on writing and reading about the students' Latino culture; (2) counselors in the English classroom that are familiar with the organizational cultural, and academic challenges that these students face; and (3) carefully selected mentors from the Latino professional and academic community (McGrath & Galaviz, 1996). The Enlace program at Evergreen Valley College (California) adapted The Puente Project to include a focus on mathematics (Avalos & Pavel, 1993). Laden (1999) provides a comprehensive description of The Puente Project in her study while a report by the Academic Senate for California Community Colleges (1993) also provides an annotated listing of 19 mentoring programs, including The Puente Project.

This third theme supports the literature on differences in learning styles among respective cultural groups as described by researchers such as Brown, Collins, and Duglid (1989), Dunn and Griggs (1995), and Sanchez (2000).

Theme Four: Signs or Keys to Identify Pipeline Participants

Each respective faculty member indicated particular traits, skills, or signs they used to identify Hispanic students whom they encouraged to continue through the higher education pipeline. Some of these traits

included students' seriousness and motivation in attendance, completing assignments, and accepting responsibility (such as leading a group project). Common signs of potential aspiring students were an indication of wanting to discuss educational or career goals with the faculty members or the expression (in words or actions) students used to indicate their connection to the college, the instructor, or the community at large. Communicating effectively with the faculty member and peers also was a skill highlighted by two of the faculty as an important sign of students' academic potential and interest.

Perhaps the most interesting method of motivating students through the pipeline was the "Battle of High-Tech Warriors," an annual contest in the automotive technology program modeled from the popular series on The Learning Channel, *Junkyard Wars*. In this competition, students were placed in leadership positions and challenged to perform beyond their standard level. Students who succeeded at this challenge were then encouraged to continue in the program or move to the next stage of the pipeline. This example illustrates that the students' actions were a form of self-identification of their academic aspirations. In other words the students were not "selected" by the faculty, rather, their actions declared their academic intentions.

Comments from our student interviews partially support this theme. It appeared to be obvious to the Hispanic students that taking the first step (i.e., approaching the faculty member with questions) was a key to getting the faculty member's attention and developing a relationship with this individual. Seeking help outside of class and a having a high level of performance on assignments were two additional factors these students recognized as fundamental keys to gaining additional attention from the faculty. Accepting responsibility or challenges, however, were not mentioned by any of the students we interviewed.

Theme Five: Career Advancement and Additional Income are Keys to Moving Students Through the Pipeline

What do these faculty do to encourage students to continue through the pipeline? Each faculty member indicated three primary means they used to encourage Hispanic students to continue their studies. First, they provided words of encouragement and reassurance that the student had the ability to "move to the next level." Second, they provided additional information about how additional credentials would enhance career advancement. Third, they provided additional infor-

mation about the linkage between additional education and increased income.

This theme supports the literature that indicates that the two primary reasons students attend the community college is to "get a better job" and to "make more money" (Laanan, 2000). It also supports a previous finding that encouragement and support from faculty enhance students' completion of vocational programs (Texas Higher Education Coordinating Board, 1991).

IMPLICATIONS FOR RESEARCH

This study is limited in that only three faculty members were interviewed. Although the data cannot be generalized to other HSIs or community colleges, information gathered in this study through the faculty and student interviews and a review of the extant literature provide insight into three areas where additional research is warranted.

Organized mentoring programs have been found to be an effective strategy to increase the persistence and educational attainment of Hispanic students. Laden (1999), for example, identified that The Puente Project had been replicated in 38 California community colleges due to the high success rate of persistence and higher aspirations of Hispanics as a result of this program. Students at this HSI indicated that specific faculty members were the primary influence in their educational decisions, and the faculty interviewed described retention techniques and strategies akin to mentoring. Unfortunately, there is not a formal mentoring program at this institution, however, The Puente Project offers a model for this college to consider. It is important to ask these questions: Can informal, individually developed mentoring work as effectively as formal programs? How can successful mentoring techniques and strategies be shared among faculty in instances where there are not formal programs? Can just a few faculty members serve as mentors for the larger student body? The three faculty members we interviewed were identified as exemplars in facilitating Hispanic student success at this particular HSI. How could they in turn influence other faculty members to adopt such a commitment to these students?

Each faculty member in this study had developed "signals" that indicated a student was receptive to faculty encouragement to continue their education. These signals were predominately perceptions that the faculty had developed through years of experience. Are their perceptions correct? The student interviews only partially supported these perceptions. To better understand factors that enhanced student

success in vocational programs, a previous study surveyed both faculty and students (Texas Higher Education Coordinating Board, 1991). A primary finding of that study was that discrepancies existed between faculty perceptions of student beliefs and actions and the reasons students provided for their beliefs and actions. One might ask: Are there signals that Hispanic students believe they are sending to faculty that have not readily been recognized as indicators of interest in continuing through the educational pipeline? Are faculty misinterpreting some actions as signals of interest or disinterest when, in fact, they are not?

The majority of research on the educational pipeline for Hispanic students has focused on transfer to a baccalaureate institution. There also appears to be an educational pipeline that culminates with the completion of the associate degree. Broader studies of this pipeline are warranted to gain a more comprehensive understanding of how students navigate the pipeline and the role of faculty in facilitating student success through the pipeline.

Students attend community colleges for reasons other than transfer to baccalaureate programs. For technical and occupational students, the educational pipeline that leads to a sub-baccalaureate certificate or a terminal associate's degree continues to provide students with opportunity for social mobility. Research findings have shown a positive relationship between these additional levels of education and earnings (Grubb, 1996; Sanchez & Laanan, 1998). This preliminary investigation suggests that in a similar fashion to the transfer pipeline, faculty play an important role in facilitating the success of Hispanic students with less-than-baccalaureate goals. Our hope is that this introductory investigation will encourage others to study this particular segment of the educational pipeline.

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