

Transfer Student Capital:
Increasing Latinx Student Participation in STEM

Abstract

Currently, science, technology, engineering, and mathematics (STEM) programs in community colleges and 4-year institutions are predominantly white spaces that can marginalize underrepresented, racial/ethnic minority students (Kanno & Cromley, 2015; Martin, et al., 2018; Samuelson & Litzler, 2016; Valadez, 2008; Wang, Lee, & Prevost, 2017). Latinx students make up the largest racial/ethnic minority group of college students (Martinez & Deil-Amen, 2015), and they are more likely to begin their postsecondary education paths in community colleges (Arbona & Nora, 2007; Starobin & Bivens, 2014). Many will start at community college in programs that lead to vertical transfer (Martin, et al., 2018). Transferring from a community college to a four-year institution is a difficult process to navigate, especially for racial/ethnic minority students who are likely to have experienced inequitable educational experiences. Institutions seeking to assist them in obtaining baccalaureate degrees must increase these students' Transfer Student Capital (TSC) (Laanan, Starobin, & Eggleston, 2010). The purpose of this presentation is to show how high schools, community colleges, and four-year institutions can partner together to assist Latinx students in acquiring baccalaureate degrees in STEM fields by increasing their TSC.

Keywords: STEM programs, Latinx students in STEM, Transfer Student Capital, transfer students

Transfer Student Capital:

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According to Achieving the Dream's 2018 publication *Career Pathways in Advanced Manufacturing*, roughly 3.5 million manufacturing jobs will become available within the next decade. Students in middle and high schools now will need to be prepared to fill these jobs and others in the science, technology, engineering, and mathematics (STEM) fields that will open up or will be created within the next ten years. Currently, racial/ethnic minority students are underrepresented in STEM programs in community colleges and 4-year institutions (Kanno & Cromley, 2015; Martin, et al., 2018; Samuelson & Litzler, 2016; Valadez, 2008; Wang, Lee, & Prevost, 2017). This underrepresentation is a serious issue; according to Olson and Labov (2012), "minority groups underrepresented in STEM fields soon will make up the majority of school-age children in the United States" (p. 11). Olson and Labov argue that to maintain "the strength and vitality of science and technology in the United States" racial/ethnic minority students must succeed in becoming scientists and engineers (p. 11).

Considering that Latinx students make up the largest racial/ethnic minority group in American schools and that they are more likely to enroll in community colleges (Arbona & Nora, 2007; Martinez & Deil-Amen, 2015; Starobin & Bivens, 2014), "it is particularly essential to identify and study successful efforts to increase transfer among Latin[x] students" (Wassmer, Moore, & Shulock, 2004, p. 669). The purpose of this paper is to show how high schools, community colleges, and four-year institutions can partner together to assist Latinx students in acquiring baccalaureate degrees in STEM fields.

Theoretical Framework

Social and Cultural Capital

Pierre Bourdieu (1986) used the term *capital* to classify the forms wealth (including nonmonetary wealth) that individuals possess. Cultural capital, as Bourdieu explains, exists in various forms—from a person’s tastes and ways of speaking and the cultural value of objects (paintings, writings, instruments, etc.) a person possesses to a person’s educational attainment (p. 246). Bourdieu terms cultural capital derived from a person’s educational attainment or qualifications as capital in the form of the “institutionalized state” (p. 247).

Since Latinx students are underrepresented in terms of baccalaureate degree completion in STEM fields, from a Bourdieuan perspective, they are being kept from obtaining valuable cultural capital in the form of educational attainment. It is imperative that secondary and post-secondary institutions evaluate their policies and practices to make sure that they are serving their racial/ethnic minority groups. One way these institutions can do this is to impart another type of capital to their students: Transfer Student Capital (TSC).

Transfer Student Capital

Successful transfer from community college to a four-year institution requires students to have the grades, the right courses to ensure credit transfer, and the knowledge of financial aid options; in short, successful transfer depends on what Laanan (in Bourdieuan terms) calls *Transfer Student Capital* (TSC) (Laanan, Starobin, & Eggleston, 2010). Citing Laanan’s earlier work (2007), Laanan, Starobin, and Eggleston (2010) argue “that the more TSC a student possesses, the greater likelihood of this student to successfully transfer from a community college to a 4-year institution” (p. 177).

Since Latinx STEM college students are likely to begin their post-secondary education at community colleges in programs that lead to vertical transfer (Martin, et al., 2018), institutions seeking to assist them in obtaining baccalaureate degrees must increase these students' Transfer Student Capital (TSC). Adopting a Bourdieuan perspective, this paper will review specific steps that high schools, community colleges, and four-year institutions can take to increase the TSC of their Latinx students.

Review of Literature

High School TSC

Wassmer, Moore, and Shulock (2004) state that “the most significant predictor of persistence through the baccalaureate degree for all students, including those beginning their postsecondary studies in community colleges, is the degree of academic rigor of their high school curriculum” (p. 655). The United States is not preparing Latinx students for baccalaureate programs as well as it prepares white students (McFarland et al., 2019; Valadez, 2008). Since academic preparation is an important aspect of TSC (Laanan, Starobin, & Eggleston, 2010), Latinx students, on average, have less Transfer Student Capital than their white peers. High schools can increase their TSC by keeping Latinx students engaged in rigorous courses.

Not only do high schools need to give their Latinx students opportunities to take rigorous courses but they also need to help them with college planning and application (Kanno, 2018). In their research with Hispanic women in engineering majors, Martin, Simmons, and Yu (2013) offer this suggestion to high schools: “Improve parental education regarding the processes for university admission, financial aid, expected engineering course load, and long-term benefits of earning an engineering degree” (p. 240). If parents are informed, this can increase their children's TSC.

In their research regarding the role of high schools and community college collaborations to increase Latinas in STEM programs, Starobin and Bivens (2014) found that Latina students responded positively to their Latina school counselor who encouraged them to study STEM fields first at a community college and then transfer. Starobin and Bivens found that “a strong leader whose background is similar to the students’ and who is knowledgeable about their culture and language is pivotal to advancing students, encouraging parents, and garnering support from English-speaking colleagues” (p. 21). This counselor had similar cultural capital to the students, and she was able to use her Transfer Student Capital to increase theirs. High school counselors are key players in helping students develop more TSC before heading off to college (Laanan, Starobin, & Eggleston, 2010; see also Hill, 2008).

Community College & Four-Year Institution TSC

In order for high school counselors to improve their students’ TSC, open communication needs to exist between high schools, community colleges, and four-year institutions. Laanan (2004) states, “preparing community college students regarding the expectations and institutional culture of the senior institution will likely facilitate a smooth transition” (p. 344). Such preparation can only occur if community colleges and four-year institutions communicate clearly with each other.

Green and Foley (1997) recognize that community colleges often have open admission policies to enter the institution, but they also have “barriers to program admission—some legitimate and some artificial— [that] often prevent promising nontraditional students from getting a chance to start” (p. 77). Since Latinx students are being underserved by high schools across the nation (Arbona & Nora, 2007; Bragg, 2012; Callahan, Wilkinson, & Muller, 2010; Gándara & Orfield, 2012; Kanno, 2018), potentially arbitrary barriers to STEM program

admission may prevent them from entering STEM fields even if they apply and are accepted to a community college. Green and Foley (1997) state that “by employing alternate means for assessment, screening, and selection, the college can improve the equity of these gatekeeper functions” (p. 77).

Another concern for Latinx students who start their STEM programs at community colleges is credit loss. Hodara, Martinez-Wenzl, Stevens, & Mazzeo (2017) found that many community college students selected their major and transfer institution too late to avoid credit loss, and this is tied to “low bachelor’s degree completion” (p. 333). Hodara et al. (2017) recommend that community colleges partner with four-year institutions to develop “transfer pathways” (pp. 338-339). Transfer pathways, according to Hodara et al., “allow most students with an associate’s degree to meet all lower division general education and pre-major requirements before transfer, enter university ready for upper division coursework in their major, and earn a bachelor’s degree within 2 years” (p. 339).

Wassmer, Moore, and Shulock (2004) offer another opportunity for collaboration between community colleges and four-year institutions that could increase Latinx students’ TSC: “Cooperative agreements between community colleges and 4-year institutions could make upper division courses available on community college campuses” (p. 666). Since these higher level courses will be more rigorous, community college students who take them will increase their TSC. Laanan, Starobin, and Eggleston, (2010) argue that “the extent to which the curriculum at the 2-year college is rigorous and requires students to do more reading, writing, and researching will improve student preparation for the 4-year institution” (p. 196).

Conclusion

High schools, community colleges, and four-year institutions can collaborate to improve the Transfer Student Capital of Latinx students interested in STEM. High schools can support their Latinx students interested in majoring in STEM by ensuring that they have access to more rigorous courses. High school counselors can also help high schoolers by increasing their knowledge about the application and transfer processes. Community colleges and four-year institutions can collaborate together to make transfer a more smooth, straightforward process and to offer higher level courses on community college campuses. Ultimately, what is needed is a commitment from secondary and postsecondary institutions to value their Latinx students and to identify and eradicate barriers that specifically keep Latinx students from equitable access to STEM programs.

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