Classroom Learning Communities' Impact on Students in Developmental Courses

By Stefanie T. Baier, Sandra M. Gonzales, and Shlomo S. Sawilowsky

ABSTRACT: Developmental courses help academically underprepared students to succeed in college. Classroom learning community programs aid intellectual growth through academic and social support. The current study examined whether developmental students in classroom learning communities differed with respect to college GPA and retention from their peers not receiving such support. Data from full-time first-time-in-any-college freshmen (N = 332) at a Midwestern university were obtained. The results indicate that students in a developmental math or English course with classroom learning community support had statistically significant higher college GPAs, but did not differ from their peers in second- and third-year enrollment.

Instructional delivery may require a move from transactional teaching styles to relational models that increase collaboration and engagement.

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In the United States (U.S.), an estimated 35 to 40% of first-time in any college students (FTIACS) need additional academic support to be successful at the college level (Bettinger, Boatman, & Long, 2013; Engstrom, 2008; Sparks & Malkus, 2013; Strayhorn, 2012; Weiss, Visher, Weissman, & Wathington, 2015). Because the underpreparedness of incoming freshmen has contributed to low graduation rates (Weiss et al., 2015), U.S. colleges and universities offer developmental courses and other support services to aid this academically vulnerable student population. According to Bettinger and colleagues (2013), developmental courses "are the support most widely used by colleges to address the academic needs of underprepared students" (p. 94). Most developmental courses focus on math, reading, and writing. Unfortunately, stand-alone developmental courses have mixed results with respect to academic success, course completion, and retention.

To increase effectiveness, instructors should consider the demographic diversity of students including first-generation status, racial/ethnic diversity, socioeconomic background (Engstrom, 2008), commuter status, and student work and family demands (Weiss et al., 2015). Furthermore, the instructional delivery may require a move from transactional teaching styles to relational models that increase collaboration and engagement. Researchers posit that students in a more relational environment—who receive academic and social support—feel more integrated and connected to peers and faculty and are more likely to succeed in college (Strayhorn, 2012, Tinto, 1999, 2006, 2012; Zhao & Kuh, 2004).

Literature Review

Developmental Education Courses

Frequently, when students are placed in developmental education programs, the goal is to assess their academic needs and provide the necessary supports (Boylan, 1999). As such, "Developmental education is the integration of academic courses and support services guided by the principles of adult learning and development (National Center for Developmental Education, 2019). Students are generally enrolled in these courses based on academic factors-high school GPA (Grade Point Average) and scores on college entrance exams (Bailey, Jaggars, & Scott-Clayton, 2013) and the ACT (American College Test) or SAT (Scholastic Achievement Test). According to Sparks and Malkus (2013), the number of first-year undergraduate students at two- and four-year public universities in the U.S. who attended developmental courses between 1999 and 2008 was between 19% and 26%. According to Bettinger et al. (2013), 35 – 40% of students participate in some form of developmental education during their college preparation program, and 90% of public colleges offer credit for developmental courses but do not count these toward degree completion.

Studies examining the success of developmental courses have yielded mixed results. For example, in Ohio, college students who completed developmental courses were more likely to persist and complete a bachelor's degree than their peers of similar background and with comparable test scores who did not take developmental education courses (Long & Boatman, 2013). Martorell and McFarlin (2011) examined administrative records for over 250,000 college students in Texas and had similar findings. Calcagno and Long (2009), however found the opposite was true for a large data set provided by the Florida Department of Education. According to their data the developmental group was less likely to persist than the comparison group. Based on these studies, the impact of developmental courses on positive college outcomes manifests differently depending on academic preparedness, background, and demographics, as well as the type of institution the students attend (Bettinger & Long, 2007; Bettinger et al., 2013). Bettinger and Long (2009)

calculated coefficients for academic factors—GPA and ACT, personal and demographic characteristics, degree seeking intent and grades in high school math and English—to predict the likelihood of students taking math and English developmental courses using a regression model. Once in college, these same students were tracked for 6 years. If they did not graduate within 6 years they were considered drop-outs. Developmental courses had a positive effect on student outcomes, persistence, and graduation, although developmental courses in English and math led to different outcomes with respect to choice of major. For example, students who took developmental math were more likely to major in a math-related field. Conversely, this was not the case for students who took developmental English. They were not found more likely to pursue English as a major.

Bahr (2008) examined data for over 85,000 students enrolled in 107 community colleges in California to determine if students who successfully completed developmental math courses transferred and acquired degrees at the same rate as students who did not require developmental work in math. Using a hierarchical multinomial logistic regression of academic achievement, Bahr (2008) found students who completed developmental math were similar to their peers who completed college-level math with respect to (a) completing a certificate and (b) transferring to a four-year institution. The difference identified was that students who completed developmental math transferred, but were slightly less likely to transfer with a credential in hand. Conversely, 83% of those who were not successful in developmental courses neither completed a credential nor did they transfer to a four-year institution. However, students who took college-level math and were unsuccessful were still more likely to transfer even if they did not acquire a certificate.

Goudas and Boylan (2012) criticized the methodological and interpretive validity of success indicators, including those noted previously. They found that students at different levels of preparedness were impacted differently. Likewise, they found the definition of developmental education to be subjective. Subsequently, Scott-Clayton, Crosta, and Belfield (2014) responded to some of the methodological concerns such as using developmental screening assessments rather than high school transcripts to predict college course outcomes. They employed a function called severe error rate and found students were erroneously placed in developmental courses even though the developmental screening data predicted they could earn a B or better in college-level courses. Conversely, students who needed developmental support were erroneously placed in college-level classes even when predicted to fail. They argued that using high school grades in combination with developmental screening assessments would reduce placement errors. This approach has also been proposed by Boylan (2009).

Bailey and colleagues (2013) concluded developmental education can be effective if a sequence and corequisites within the curriculum are considered including noncognitive factors, academic, and social supports. Few studies have examined the pedagogy of developmental courses with wrap-around support and services, even though they may be the backbone of student success. An example of those supports are learning communities.

Learning Communities

Developmental education frequently includes tutoring and support from learning centers (Boylan, 1999) and other programs. Different models have been developed to accommodate the needs of incoming students who face challenges of an academic and social nature. The T.I.D.E.S. (Targeted Intervention for Developmental Education Students) model, for example, uses seven steps of information gathering to afford students targeted experiences (Boylan, 2009). In addition, learning communities (LCs) can be used to support students. LCs are characterized by common academic and social features to help students become more integrated learners, build community, and become more connected to institutional resources. These features are intended to support the growth of intellectual capabilities and to strengthen social connections among students using cooperative learning techniques (Tinto, 1999; Zhao & Kuh, 2004). Students can also develop a sense of belonging and self-efficacy within this setting.

Few studies have examined the pedagogy of developmental courses with wrap-around support and services.

University LCs can be structured in various ways. Some LCs are residential living and learning communities where students live on campus in community with one another while also enrolled in linked and cohorted courses designed to increase peer interactions (Zhao & Kuh, 2004). Another kind of learning community is the classroom learning community in which the teacher fosters a sense of belonging and inspires students to connect with each other as well as the content through collaborative learning techniques (Lenning & Ebbers, 1999; Zhao & Kuh, 2004). Other LCs may target specific groups such as underprepared students, underrepresented students, as well as students with common interests related to their major (Lenning & Ebbers, 1999). Different LC models exist and all offer a wide variety of student support services.

Tinto (2006, 2012) argued that academic support is more effective when associated with a supportive learning environment. LCs can help students create partnerships with advisors, faculty, peer mentors, and peers which help them feel supported as both students and as human beings. Tinto (1999) has described different models of learning communities frequently used in the freshman year, many of which also included a developmental component. For example, one LC model linked a learning community to a cluster of first year courses—sometimes including a developmental course—similar to a freshman seminar. Another model connected a large lecture class of 200 to 300 students to a learning community consisting of fewer than 25 students (Tinto, 1999). Some LCs are designed as a high school to college summer bridge programs prior to the first semester; others may convene during the first semester of a student's freshman year.

Peer mentor support, frequently used in the context of learning communities, has been found as extremely beneficial. For example, Morales, Ambrose-Roman, and Perez-Maldonado (2016) found in their qualitative research that peer mentors who modeled successful and goal-oriented academic behaviors positively influenced developmental math students, including their sense of self-efficacy, campus integration, and developmental math pass rates. Leidenfrost, Strassnig, Schabmann, Spiel, and Carbon (2011) found that the impact of peer mentoring is strongly influenced by its quality and the frequency of positive interactions.

Gonzales, Brammer, and Sawilowsky (2015) considered a new learning community model created in a Latina/o Studies program at a Midwestern four-year university. All students—regardless of incoming GPA, standardized test score, honors or special admit—were required to participate in the new LC starting in 2007. The LC component consisted of weekly small-group gatherings (approximately 20 students) with peer mentors working collaboratively on topics relevant to college adjustment and success. The three time phases investigated were preimplementation (2004-2006, $N = 117$), the initial transitional year (2007, $N = 29$), and postimplementation (2008-2012, N=174). The model included a Summer Enrichment Program with developmental coursework in math and English as well as rigorous first-year gateway math and English with additional lab hour expectations. Students received wrap-around support services, biweekly peer mentoring sessions, monthly advising, and access to bilingual faculty and staff.

Gonzales and colleagues (2015) found cohort groups who participated in the new learning community from 2008 to 2012 had the highest

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predictors for retention compared to previous groups of students, despite being considered some of the university's least prepared students. Retention increased from 48.3% prior to implementation to 86.8% postimplementation. Postintervention developmental math pass rates surpassed the institution's larger FTIAC population (78% versus 44% in 2008; 100% versus 59% in 2009). A one-way ANCOVA and multiple linear regression analysis indicated ACT and GPA scores from their sample were not statistically significant predictors of college retention. Thus, they demonstrated that regardless of incoming GPA and standardized test scores, Latino/a students at all levels, developmental and otherwise, were equally likely to succeed with proper LC support.

Similarly, Weiss and colleagues (2015) conducted a study at six community colleges to examine the impact of learning communities on students taking developmental math and English courses. Students were randomly assigned to a LC or a comparison group. A chi-squared test showed no significant differences in characteristics of the groups. A very small positive effect was found for students enrolled in both developmental courses and learning communities. These students accumulated 0.5 more credits during the first semester than students not in a learning community. However, college persistence did not improve for the treatment group.

In a qualitative study, Engstrom (2008) investigated the effect of a basic skills LC on underprepared community college students participating in a learning community that linked a noncredit bearing basic skills course such as math or English to another basic skills or general education course, or both. Engstrom interviewed 182 students from three community colleges in California multiple times over a 4-year time period. Students emphasized the significance of faculty who promote active learning, engagement ,and integrative learning experiences. They voiced an appreciation for learning strategies that support learning and develop self-confidence. Students specifically referenced faculty's caring attitude and investment in students' learning. These practices were found to boost student success and consequently persistence.

Other positive outcomes for students in learning communities may be difficult to measure and generalize (Tinto, 2006; Zhao & Kuh, 2004). Some of the benefits may not be immediately visible. Potential confounding variables might include format, fidelity to the LC program, population characteristics, and self-selection bias. The challenges of commuter, first-generation and nontraditional students, diversity of the campus, financial constraints of students, and work challenges (e.g., students having to work off campus) among others may also have an impact on access to and participation in LCs.

The Learning Community Model in the Current Study

In this study we examine the impact of developmental courses that offer a classroom learning community component on student success at a four-year urban research institution in the U.S. This component includes access to peer mentors and peer-led study groups, high faculty-student engagement, and integrated enrichment activities.

Developmental math and developmental English were the two classroom learning communities examined in this study. Not all developmental math and English sections at the institution include a classroom learning community component. Thus, the authors examined the difference between those developmental math and English courses that included a classroom learning community and those that did not.

At the Midwestern university under study, placement in a developmental course was based on incoming standardized test scores. Students with a math ACT score of 18 or lower were placed into a "rising" developmental math section whereas those with scores between 18 and 21 were placed in the "emerging" developmental math section. Both sections included a classroom learning community component. Students conditionally admitted to the university were automatically enrolled in a developmental course section that included a classroom LC. Conditionally admitted students are those whose GPA and/or ACT score does not meet standard admission. These students have to bring up their GPAs and earn grades no lower than a C in all their courses in their first three semesters to become regularly admitted by the institution. Other students who were referred by an academic adviser or an instructor could opt out of a developmental course with the additional classroom LC experience.

Students emphasized the significance of faculty who promote active learning, engagement, and integrative learning experiences.

The developmental math LC was a 6-hour weekly commitment that used a support structure inspired by Uri Treisman (1992) who examined factors influencing minority students' failure in calculus. He found that low-income students and minority students rarely worked with other students, whereas Chinese students who performed really well, for example, frequently met to discuss course content. Because many students in developmental math at the university under study have been traditionally nonwhite and of first-generation student status, the format of the math LC was organized in a manner similar to Treisman's "workshop" model. This model was designed to provide students "with a challenging, yet emotionally supportive academic environment" (1992, p. 368), building a community of learners by connecting through common learning experiences. Treisman proposed that educational institutions need to encourage interactive learning (Garland, 1993). To promote a similar environment at the university under study, no more than 25 students were in one developmental math section.

Students in the math developmental classroom LC met twice a week outside of class for a study group and practiced math together in a collaborative setting for an additional 2.5-3 hours per week. The study group was facilitated by peer mentors who were liaisons between students and faculty members. Many peer mentors were former students in the program. These peer mentors worked with their assigned students, tutoring them and supporting them during office hours and in community spaces. Once a month, after each exam, students met with peers, peer mentors, and faculty members for a luncheon and board games.

The developmental English LC was limited to 25 students. Student standardized test scores on the ACT/SAT were used to determine placement. Enrolled students were assigned a peer mentor who committed to work with their assigned students for 2.5 hours a week. Peer mentors worked in the classroom providing assistance and running Q&A sessions. Outside of class, peer mentors communicated and worked with their English developmental LC students as needed. Developmental LC students also met for "Drafting Parties" where they worked with peer mentors to edit draft papers in preparation to showcase their writing to the campus community. Students could self-select into a developmental course or a developmental LC course.

A unique aspect of the math and English developmental LC programs under study was the peer mentor model which required frequent communication between peer mentors, students, and instructors. Peer mentors attended a 2-day peer mentor training and received additional training as relevant to their LC. They provided in-classroom academic and social support, taught study skills as well as soft skills, and helped with college-related challenges, such as financial aid or counseling services with a focus on college success.

Purpose of the Study

The intent of this study was to examine whether students in developmental classroom LCs differed in retention and academic success from students in developmental courses without LC support. The study

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sought to determine if students in developmental classroom LCs had a significant advantage over their peers who attended developmental courses without a classroom LC component at end of first and second year. First to second year college GPA was used as an indicator of academic success. Re-enrollment in the second and third academic year was used as an indicator of retention.

Method

Setting and Participants

Data were obtained from a United States Midwestern, public university with an annual enrollment of approximately 28,000 students. The institution had a large commuter population. The collection and analysis procedures were approved by the Institutional Review Board at the university. The data set used for the study stemmed from the institution's financial aid roster which included de-identified information of all undergraduates (N = 18,602) for the academic year 2013/14. For this study, a sample of full-time FTIAC students who had taken at least one developmental course during the fall semester of 2013 with N = 332 participants with a mean age of 24. Of those participants, 271 were also in a classroom LC, whereas 61 were not. Of the sample, 27.4% identified as non-White and 17.8% were in the "Unknown" or "Missing" race category. Over 50% were first-generation college students who qualified for financial aid. Part-time students were not included in this sample. Student demographic information is summarized in Table 1. Academic Performance data—second- and third-year cumulative GPA, high school GPA, ACT scores, and second- and third-year retention data—were retrieved from the university's Student Tracking Advising Retention System (STARS).

Analysis

Data analyses employed for the study were *t*-tests, chi-square analyses, a one-way ANCOVA and a logistic regression. To compare two groups—developmental students and developmental students with classroom LC support—*t*-tests were performed to determine whether the groups differed in relevant characteristics. In terms of ratio-level covariates, there was no statistically significant difference (t = .67, df = 328, p = -.499) between the high school GPA (comparison group m = 2.90, sd = .43vs. LC group m = 2.86, sd = .46), or age (comparison group m = 24.52, sd = 8.2 vs. LC group m = 24.11, sd = 7.4; t = .39, df = 330, p = .696). Although there was a statistically significant difference in Composite ACT (t = 3.46, df = 325, p = .001), it favored the comparison group (m = 19.72, sd = 2.0) over the LC group (m = 18.63, sd = 2.2).

Chi-squared analyses were used to determine differences for demographic (categorical) variables. In terms of demographic covariates, there was no statistically significant difference in ethnicity (χ^2 = 2.37, df = 4, p = .669). However, there was a statistically significant difference in sex, (χ^2 = 16.44, df = 1, p = .000), with the breakdown as noted in the Table 2. Conversely, overall the percentages were more heavily weighted toward female participants (63.6%) than male participants (36.4%) regardless of group membership.

A one-way ANCOVA was conducted with nominal α set to 0.05 to determine if there was a statistically significant difference between students in a developmental classroom LC (n = 271) and students in a developmental course without classroom LC support (n = 61) on first year GPA, with high school GPA and ACT as covariates. The statistical hypotheses were H_o: $\mu'_{LC} = \mu'_{NLC}$ and H_a: $\mu'_{LC} \neq \mu'_{NLC}$ where μ' refers to the covariate adjusted population mean, LC referred to LC students, and NLC refers to non-LC students.

Table 1
Demographic Information for Students in Developmental Courses (N =332)

Student Characteristics	*n*	%
Students in at least One Developmental Course	332	100
Of those in a developmental classroom LC	271	81.6
Of those in regular developmental courses	61	18.4
Sex		
Men	121	36.4
Women	211	63.6
Race/Ethnicity		
Asian	24	7.2
Black or African American	67	20.2
Native Hawaiian and Other Pacific lander	1	0.3
White	182	54.8
Unknown	33	9.9
Missing	25	7.5
First-Generation College Student Status		
First-Generation College Student	171	51.5
Not First-Generation College Student	144	43.4
Missing	17	5.1

Table 2
Breakdown of Developmental and Classroom LC Group by Gender

	Receiving LC Support	
	No	Yes
Female	25 (11.8%)	186 (88.2%)
Male	36 (29.8%)	85 (70.2%)

Results

A statistically significant effect was found for first-year college GPA after controlling for high school GPA and ACT scores (F = 6.856, df = 3, 321, p = .000) for students in classroom LCs. Similarly, there was also a significant effect on second-year GPA after controlling for high school GPA and ACT scores (F = 11.660, df = 3, 306, p = .000) for the LC students. Results are compiled in Table 3 (p. 7).

The number of participants distributed in the race categories was not sufficient to compare groups. A comparison of differentiated effects for students who identified as first-generation versus not first-generation, however, did not indicate any statistically significant differences.

A logistic regression analysis was performed to determine if high school GPA, ACT scores, and LC support predicted students' registration in subsequent years. Only high school GPA predicted registration in the second (B = 0.62, p = .02) and third year (B = 0.82, p = .00), as noted in Table 4 (p. 7).

Discussion

Although research has shown repeatedly that academic variables, such as high school GPA, are among the strongest predictors for academic success and retention, benefits of developmental classroom LCs have less often been cited in this context. This quantitative study focused on an academically vulnerable group of students to see whether a developmental classroom LC had positive impact for academic success and retention. The findings indicate that students who were in a developmental classroom LC have higher GPAs at the end of the first and second year in comparison to students in developmental courses without the classroom LC component.

Many researchers have demonstrated that LC support greatly benefits undergraduate students, particularly first-year students (Gonzales et al., 2015; Huerta & Bray, 2013; Tinto, 1999, 2006; Zhao & Kuh, 2004). Fewer studies have looked at undergraduate subpopulations at universities such as underprepared students of diverse socioeconomic, racial, and first-generation backgrounds. In addition, fewer research studies have examined the effect of developmental classroom LCs

Table 3
ANCOVA for Students in Developmental Classroom Learning Communities versus Students Only in Developmental Courses (N=332)

Variables	SS	*df*	MS	*F*	Sig.
First-Year Cumulative GPA					
Between Groups	18.687	3	6.229	6.856	0
Within Groups	291.632	321	0.909		
Total	310.319	324			
Second-Year Cumulative GPA					
Between Groups	24.242	3	8.081	11.66	0
Within Groups	212.07	306	0.693		
Total	236.311	309			

on underprepared students at four-year research intensive institutions, particularly those with a large commuter student population such as the one in this study. Another factor unique to this study was the average age, 24 years old, of students enrolled in developmental courses, indicating that many participants did not start college directly after high school. These findings are encouraging. Positive effects of developmental classroom LCs included first-year and second-year increases in GPA.

Our study aligned with several of the studies noted in this paper with regards to ACT scores not being a predictor of retention (Baier, Markman, & Pernice-Duca, 2016; Gonzales et al., 2015). Likewise, the current study was unable to show that developmental classroom LCs impacted retention into the second and third academic years, but neither did their ACT scores. The only factor impacting students' retention in subsequent years was high school GPA. This finding concurs with the Scott-Clayton et al. (2014) study which argued that high school grades used in combination with test scores could reduce developmental placement errors. What our study showed, however, is that developmental courses in combination with LCs has a positive impact on students' academic performance.

Possible explanations for outcomes include: 1. Students who experience a noteworthy GPA boost in their first year of college as a result of developmental classroom LC support may be more likely to continue with college. 2. The effects of developmental classroom LCs with respect to consecutive fall semester retention may not manifest until the third year. Even though there was no first to second year retention difference between students with developmental classroom LC support and students in developmental courses without LC support, the classroom LC students continued into the third year at slightly higher rates than their non-LC counterparts. Data for year four were not available at the time the study was done.

Limitations

Some limitations to the study need to be noted. Although the sample was diverse, there was no representation from Latina/o students because these students receive their developmental instruction in the summer prior to entering college. Also, typically females are more receptive to social support (Dixon Rayle, Robinson Kurpius, & Arredondo, 2006; Holt, 2014), and there was an overrepresentation of females in the LC group. The mean age of the participants was 24, which is rather uncommon for FTIACS, therefore, the results may be generalized with caution to other institutions. In addition, nonrandom placement of students into developmental courses needs to be noted. Furthermore, some of the students may have been in both, the developmental math and English LC, benefiting from more support. Taking these factors into consideration would strengthen a similar study. In spite of these limitations, it can be seen that LC support greatly aids developmental students.

Table 4
Logistic Regression Analyses Predicting Registration in the Second and Third Year for Students in Developmental Courses (N=332)

Variables	B	S.E.	Wald	*df*	Sig.	Exp (B)
Predicting Second-Year Registration						
(Constant)	-1.16	1.22	0.91	1	0.34	0.31
High School GPA	0.62	0.28	5.08	1	0.02	1.86
ACT Score	-0.01	0.06	0.01	1	0.91	0.99
In LC	0.13	0.31	0.18	1	0.67	1.14
Predicting Third-Year Registration						
(Constant)	-4.06	1.22	11.00	1	0.00	0.02
High School GPA	0.82	0.27	9.30	1	0.00	2.26
ACT Score	0.07	0.06	1.72	1	0.19	1.07
In LC	0.27	0.30	0.79	1	0.37	1.31

Future Directions and Implications for Practice

Transition to college can be an exciting experience. However, it may be quite challenging for FTIAC students who are underexposed to a college preparatory curriculum, or for students who enroll in college several years after high school. Developmental classroom LCs such as the ones noted in this study can provide targeted support.

Developmental classroom LCs can offer a smaller group environment in which instructors can help assuage the fears of isolation and stigmatization often felt by students. They can also shift the trope that suggests student underpreparedness is a reflection of ability, laziness, or lack of intelligence, thereby increasing self-efficacy (Bachman, 2013). Enthusiastic instructors who "use differentiated explanations to encourage greater understanding of the material" can increase "the quality of the remediation experience" positively impacting students' academic learning (p. 25). Southern (2007) has maintained that participation in a caring, safe, and supportive LC can build critical relationships that "foster a sense of belonging to something much greater than ourselves" (p. 336), which can be transformative for students.

Furthermore, strong faculty and peer mentoring relationships as emphasized in the LC model referred to in this article, appear to benefit student learning. Such relationships provide a sense of caring relevant for students who may be first-generation college students or students who lack role models within the context of postsecondary education. Findings indicate developmental classroom LCs can connect students with each other and with peer mentors, advisors, academic staff, and faculty to provide needed support. Faculty and staff may require breadth and depth training in how to build a caring classroom environment with wrap-around services that promote self-efficacy and belonging for students.

The developmental classroom LC in this study emphasizes peer mentoring. Peer mentors, typically

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upperclassmen of comparable backgrounds to students, can be very powerful role models offering unique perspectives. They can provide advice in the face of struggle and emphasize persistence and hard work to achieve academic goals. A peer mentor can be the go-to person when students are hesitant to ask their professor a question because they are embarrassed. Students in developmental classroom LCs relied heavily on peer mentor support. Baier and colleagues (2016) have found that incoming students' intent to persist was significantly predicted by mentoring. Proper training of peer mentors is crucial. Universities should put time and effort into ensuring peer mentors have the skills to adequately support their mentees.

The LCs in this study are using practices researchers have found to be beneficial (Engstrom, 2008; Huerta & Bray, 2013; Tinto, 1999, 2006, 2012). Collaborative work with students who are facing similar struggles may help those struggling to feel less isolated (Garland, 1993) and embarrassed about the need for developmental coursework. Connecting with peers, peer mentors, and faculty in a setting that allows for more engagement may be among the positive influences that help students persist. In addition, encouragement from others and vicarious out of classroom experiences can boost students' confidence and motivation to achieve (Bandura, 1986). The authors posit that the relationships developed early-on could have more potency if continued past the first semester.

Historically, institutions of higher education relied on academic data such as high school GPA, coursework, and test scores to predict the likelihood of academic success or failure as part of their admissions process. Developmental classroom LCs can help open up a different kind of discourse that repositions students from a success versus failure binary towards recognizing a greater diversity of factors that may influence developmental course placement. These factors may include FTIACs who are from low-income families or communities and/or first-generation college students as well as nontraditional students who are retooling, working parents or several years removed from high school, or military veterans. Adequate diagnostic and needs assessment practices are critical to understanding the unique circumstances leading to developmental course placement.

Retention challenges might not only signal academic distress in students, but might also signal the need for institutional change. Astin (1993) and Southern (2007) describe how educational institutions can retool by creating more reflexive teaching and learning spaces that recognize and validate different world views, experiences, and voices. Another way is by blending the personal and the academic, so students can clarify meaning and engage with diverse people and communities in exciting ways. Furthermore, Baker and Pomerantz (2000) suggest when students come from home environments in which they have intensive family and work responsibilities their incoming admissions data may not always be the best indicator of their potential. Thus, developmental classroom LCs can play an important role in helping to enlarge institutional perspective and practice while also developing critical relationships and the support networks that help diverse students succeed.

Conclusion

Our study has shown that developmental classroom LCs can positively influence students' GPA in the first two years in college. These positive outcomes may continue with the wrap-around support LCs offer in the years to follow, including engagement with faculty and collaboration with peers and peer mentors to also positively influence the college trajectory of students with respect to course completion and retention.

Investing in student support initiatives like developmental LCs offers a potential return in student success of academically and socially vulnerable students.

This support may be especially important for FTIAC students, low-income students, first-generation college students, nontraditional students, and students with academic risk factors as shown in this study and as pointed out in previous studies (Bailey, Jaggars, & Scott-Clayton, 2013; Baker & Pomerantz, 2000; Bettinger et al., 2013; Huerta & Bray, 2013).

Institutions of higher education can benefit from developmental LCs by identifying the unique demographics and characteristics of the various student populations; these consequently determine the LC model and support services provided to create a more robust developmental education program. This study shows that investing in student support initiatives like developmental LCs offers a potential return in student success of academically and socially vulnerable students whose advancement in life very much depends on degree completion.

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