

## **Hispanic Student Participation and Success in Developmental Education**

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As has been known for some time now, the Hispanic population is projected to grow to 25% of the total United States population by 2050. In spite of this growth, substantial disparities exist between Hispanics and other ethnic groups in terms of bachelor's degree attainment (Llagas & Snyder, 2003). In response, there is a rapidly growing body of evidence to understand the role of student characteristics, perceptions, academic and social experiences and behaviors, both independently and collectively influence undergraduate Hispanic student engagements and/or academic outcomes (see review by Nora & Crisp, 2009).

Developmental education is a key college experience assumed to open doors to economic and educational advancement among traditionally underrepresented groups by resolving barriers that impede access to a college degree (Bahr, 2010a). Hispanics are among the groups assumed to benefit from developmental education as the overrepresentation of Latino/s in remedial coursework is well documented (e.g., Bettinger & Long, 2005; Grimes & David, 1999; Penny, White, & William, 1998). However, there is a notable absence of empirical evidence documenting the role of remedial education in promoting success for Hispanic students.

As such, the purpose of this white paper is to summarize what is currently known regarding Latino/a students who participate in developmental education at both two and four-year institutions. We begin by describing the characteristics of developmental education. Next, we provide a profile of characteristics and outcomes for Latino/a students who participate in remediation. A brief synthesis of the developmental education literature is given, providing emphasis to studies that have included or disaggregated findings for Latino/a students. We conclude with key recommendations for research, theory, and policy.

## **Characteristics of Developmental Education**

Remedial education serves as a means of providing academically underprepared students with the knowledge and skills needed to succeed in college by eliminating or reducing academic deficiencies (Bettinger & Long, 2005; Boylan & Saxon, 2000). The term “developmental education” on the other hand, is more widely used by practitioners to describe a form of remediation that also gives attention to the holistic development of students and more systematically considering the life circumstances (Moss & Yeaton, 2006). Most developmental education professionals recognize that students must develop both personal and academic skills and argue that interventions should be comprehensive, combining instruction with advising and counseling activities (Boylan, Bonham & White, 1999).

In practice, there is a tremendous amount of variation in how developmental education is provided to students. Although many institutions offer an assortment of developmental services, the majority of colleges and universities rely on semester-long remedial courses as a means of ensuring academically underprepared students will be successful in college (Bailey & Cho, 2010). The content and rigor of remedial courses is assumed to be, at least in part, dependent on the admissions requirements of a particular institution (Merisotis & Phipps, 2000). Further, remedial policies vary among institutions and institutional types. Students may either be advised or required to enroll in one or more remedial courses based on performance on placement exams, such as the ACCUPLACER or COMPASS, upon enrolling in the college (Bailey, Jeong, & Cho, 2010; Hughes & Scott-Clayton, 2011). However, placement criteria and requirements vary across colleges. Therefore, a student who is required to complete three remedial math courses at one college may place into a non-developmental math course at another institution. These differences may be especially evident across two and four-year institutions.

While some view developmental education as a means of access to college-level courses for academically underprepared students, others see placement into remediation as serving as a gatekeeper, preventing students from enrolling in upper-level courses and limiting students' major and occupation choices (Bettinger & Long, 2005). It is notable that remedial level courses typically do not count toward a degree or certificate, which may result in both delayed progress toward a college degree and/or certificate as well as forgone earnings (Bailey & Cho, 2010; Hughes & Scott-Clayton, 2011; Levin & Calcagno, 2008). As a result, many students are discouraged from enrolling in developmental classes or do not complete the sequence to which they were referred (Bailey, 2009). In fact, research by Bailey, Jeong, and Cho (2010) found that less than 50 percent of the students who are referred to remediation actually complete the entire course sequence. Moreover, about 30 percent of students who were referred to remediation do not enroll in any courses.

As of 1995, more than three fourths (78%) of higher education institutions that enrolled first year students offered some form of remedial instruction and/or developmental services including 100 percent of community colleges and nearly all (94%) universities that served a high percentage of minority students (U.S. Department of Education, 1996). However, recently several states have been pressured to withdraw developmental education from four-year institutions, requiring students in need of remediation to attend a community college (Bettinger & Long, 2004). Many, including university faculty who philosophically disagree with providing remedial courses at four-year institutions, argue that community colleges are the appropriate institutions to provide pre-college level instruction (Bettinger & Long, 2005). Adding to the "remediation crisis" (Levin & Calcagno, 2008), many opponents argue that taxpayers are being double billed for teaching college students academic skills already taught at the K-12 level

(Merisotis & Phipps, 2000; Saxton & Boylan, 2001). Further, critics point out that remediation (regardless of whether it is offered at a two- or four-year institution) has enormous costs to government, taxpayers, post-secondary institutions, and students at all levels. For instance, figures indicate that the national cost of community college remediation is between 1.9 and 2.3 billion dollars annually. Moreover, it is estimated that the average community college student pays between 1,607 and 2,008 dollars for remediation (Strong American Schools, 2008).

On the other hand, supporters of developmental education draw attention to the large numbers of non-traditional, low-income, and minority students (both Hispanic and African American) served by remediation, arguing that the controversy over remediation is an attack on college access (Attewell, Lavin, Thurston & Tania, 2006). It is well documented that both African American and Hispanic students are overrepresented in developmental programs (Grimes & David, 1999; Penny, White, & William, 1998). For instance, Bettinger and Long (2005) found over 75 percent of Black and Hispanic students in Ohio are placed in developmental mathematics courses compared to only 55 percent of White students. Moreover, findings by Attewell, et al. (2006) suggest that Black students are more likely to enroll in developmental coursework when compared to White students with the same academic skills, preparation and social background.

### **Characteristics of Developmental Students**

Although not specific to Hispanic students, the broader literature on developmental students suggests that there are several ways in which, on the whole, developmental students may be different from college students who do not enroll in remediation. Although findings are somewhat mixed, overall research suggests that, in addition to ethnicity, developmental students likely differ from non-developmental students in terms of gender, age, first generation status, and

academic preparation prior to college. Several studies have identified women as being more likely to enroll in developmental coursework (e.g., Penny, White, & William, 1998; Bettinger & Long, 2005). Age has also been found to be related to taking developmental courses (Calcagno, Crosta, Bailey, & Jenkins, 2007). More specifically, there are findings to suggest that older students and/or students who delay entering college immediately following high school are more likely to require remediation (Burley, 1997). Further, results demonstrate that students who are classified as first generation college students are more likely to enroll in developmental coursework (Chen, 2005; Nuñez & Cuccaro-Alamin, 1998). Interestingly, socio-economic status has not been found to be a significant determinant of enrolling in developmental coursework (Attewell, et al., 2006). As one would expect, developmental students have also been shown to systematically vary from non-developmental students in terms of academic preparation during high school (Bettinger & Long, 2005; Grimes & David, 1999). For instance, findings by Grimes and David (1999) suggest that the high school experiences of developmental and non-developmental students may be different in terms of the number and types of courses taken in high school, high school grade point average, and college degree aspirations.

There is also evidence to suggest that the characteristics of students needing different types of remediation (i.e., math, reading, writing) might be different. For instance research by Calcagno, Crosta, Bailey, and Jenkins (2007) suggests that younger students may be more likely to enroll in developmental reading and writing classes while older students may be slightly overrepresented in remedial mathematics classes. Moreover, findings by Hagedorn, Siadat, Fogel, Nora, and Pascarella (1999) indicate that important differences may exist between students enrolled in remedial and non-remedial mathematics courses including gender, ethnicity, and high school grade point average.

With the exception of recent work by Bahr (2010a), very little is known about how the characteristics of Hispanic students who require remediation are similar or different from other ethnic groups. Bahr's analysis of community college students in California suggest that Hispanic students are less likely to place into college with the highest level developmental math skill, with 26 percent of White students placing into the highest level of remedial math compared to only 15 percent of Hispanic students. In contrast, only 17 percent of White students placed into the lowest level of developmental math, compared to nearly a third of Hispanic students. Bahr concludes that the degree of math deficiency entering college likely contributes to the overrepresentation of Hispanic students in remediation.

### **Profile of Hispanic Students Enrolled in Developmental Education**

In order to understand the role of developmental education in promoting access and success for Hispanic students, it is important to examine how Hispanic students who enroll in developmental coursework may be similar and different from Hispanic students who do not enroll in remediation. Moreover, it is important to consider the diversity and characteristics of Hispanic students participating in remediation at both two- and four-year institutions. As such, the following section provides a profile of Hispanic students, drawn from a national sample of students who first enrolled at a post-secondary institution during the 2003-04 academic year. Data from the Beginning Postsecondary Students Longitudinal Study (BPS: 04/06) combine institutional records, federal and Pell grant records, federal financial aid applications, National Student Clearinghouse enrollment records, college admissions test agencies, and student interviews.

Table 1 represents a national profile of Hispanic students who did and did not enroll in one or more developmental courses during the first year of college. Data from the BPS survey

indicate that Hispanic students were most likely to enroll in mathematics (56%), although a sizable percentage of students enrolled in English or reading courses (23 percent and 17 percent respectively). Females were both overrepresented in higher education on the whole and were also slightly more likely to participate in developmental education when compared to male students. Findings also suggest that Mexican American students may be more likely than other subgroups to require remediation, with Mexican American students representing nearly half (48%) of all developmental students but only 42 percent of non-developmental students in the sample. As expected, the most sizable differences between Hispanic students who did and did not require remediation were academic experiences during high school. Roughly a fourth (26%) of non-developmental students had a cumulative grade point average (GPA) of 3.5 or higher, compared to only 17 percent of Hispanic developmental students. Additionally, non-developmental students were twice as likely to have taken Calculus during high school compared to students who enrolled in developmental education. The most surprising and troubling finding were the differences in the amount of financial aid received by developmental and non-developmental students, with developmental students being both less likely to receive any form of financial assistance during the first year of college as well as being awarded lower amounts of total aid (30 percent of remedial students did not receive aid compared to 23 percent of non-developmental students).

Table 1.

*Comparison of Hispanic Developmental and Non-Developmental Students*

	Non-Dev. Students (n=1,210 <sup>1</sup> )	Dev. Students (n=680)
Female	56%	61%
Hispanic sub-type		
Mexican American	42%	48%
Puerto Rican	24%	15%
Other Latino origin	34%	37%
Parents not born in US	45%	46%
Has one or more dependents	18%	16%
First generation college student	48%	51%
High school GPA		
Less than 2.5	16%	22%
2.5 to 2.9	15%	19%
3.0 to 3.4	44%	44%
3.5 to 4.0	26%	17%
Highest math taken in HS		
Algebra II	31%	40%
Trig and Algebra II	18%	16%
Pre-calculus	22%	16%
Calculus	14%	7%
Other	16%	21%
Delayed enrollment into college	31%	34%
Financial aid received		
Did not receive aid	23%	30%
Less than 2,500 dollars	14%	18%
2,500 to 4,999 dollars	21%	20%
5,000 to 9,999 dollars	17%	17%
More than 10,000 dollars	25%	15%
<i><u>Enrollment in Type of Remediation</u></i>		
Mathematics course	--	56%
Reading course	--	23%
English course	--	17%
<i><u>Success Outcomes</u></i>		
Average first year GPA	2.84	2.70
Student earned a degree or persisted to end of second year	69%	68%
Student earned a degree or persisted to end of third year	64%	63%

<sup>1</sup> All raw data rounded to nearest 10 per NCES security guidelines

\*Percentages may not sum to 100% due to rounding

\*\*All figures represent valid percent of the column (i.e., excludes missing data)

Source: BPS:04/06 survey data

Next, we provide a comparison of Hispanic students enrolled in developmental courses at two and four-year institutions (see Table 2). Findings from the BPS sample suggest that, among all developmental students, Hispanic students who enroll at community colleges were more likely to enroll in mathematics courses. Additionally, community college students were much more likely to enroll in a developmental reading course when compared to remedial students who began college at a four-year institution (25 percent compared to 18 percent). The data also show that Mexican American students enrolled in developmental education were more likely to be enrolled at a community college, while the sample of Puerto Rican remedial students were overrepresented at four-year institutions. Further, the data suggest that four-year remedial students were substantially less likely to have dependents or to have delayed entry to postsecondary education when compared to community college students.

As expected, community college students were less academically prepared in terms of GPA and the rigor of mathematics courses taken during high school when compared to four-year students. A striking 46 percent of community college students did not take a mathematics course higher than Algebra II during high school (compared to only 30 percent of four-year students). There were also some unexpected similarities found between the subgroup of Hispanic students who enrolled in developmental education and the sample of students who did not require remediation (from Table 1). It is notable that both groups had extremely comparable high school GPA's and had comparable mathematics courses during high school. Additionally, sizable differences were observed between four-year and two-year developmental students in terms of financial aid received during the first year of college. Nearly forty percent (38%) of the national sample of community college students did not receive any form of financial aid compared to only 13 percent of Hispanic students who began college at a four-year institution.

Table 2.

*Comparison of Hispanic Students Enrolled in Developmental Courses at 2 and 4-year Institutions*

	4-Year Students (n=220 <sup>1</sup> )	Community College Students (n=460)
Female	62%	61%
Hispanic sub-type		
Mexican American	40%	51%
Puerto Rican	22%	12%
Other Latino origin	38%	37%
Parents not born in US	51%	44%
Has one or more dependents	7%	21%
First generation college student	43%	54%
High school GPA		
Less than 2.5	17%	25%
2.5 to 2.9	14%	21%
3.0 to 3.4	45%	43%
3.5 to 4.0	27%	11%
Highest math taken in HS		
Algebra II	30%	46%
Trig and Algebra II	18%	15%
Pre-calculus	26%	11%
Calculus	12%	4%
Other	13%	25%
Delayed enrollment into college	18%	42%
Financial aid received		
Did not receive aid	13%	38%
Less than 2,500 dollars	11%	21%
2,500 to 4,999 dollars	16%	22%
5,000 to 9,999 dollars	25%	14%
More than 10,000 dollars	35%	5%
<u>Enrollment in Type of Remediation</u>		
Mathematics course	52%	57%
Reading course	18%	25%
English course	17%	16%
<u>Success Outcomes</u>		
Average first year GPA	2.68	2.70
Student earned a degree or persisted to end of second year	80%	63%
Student earned a degree or persisted to end of third year	74%	58%

<sup>1</sup> All raw data rounded to nearest 10 per NCES security guidelines

\*Percentages may not sum to 100% due to rounding

\*\*All figures represent valid percent of the column (i.e., excludes missing data)

Source: BPS:04/06 survey data

## **Developmental Outcomes**

Despite the controversy and changes to educational policy regarding developmental education (see brief by Parker, 2007), there is a notable dearth of rigorous research to date measuring the causal effect of developmental education on student outcomes (Bahr, 2010b; Bettinger & Long, 2005; Calcagno & Long, 2008; Levin & Calcagno, 2008). Although considered the “gold standard” of quantitative research methods (Shavelson & Towne, 2002), the use of randomized controlled experiments to measure a causal effect of enrolling in developmental coursework on student success is not possible, as students do not randomly select to enroll in remediation (Bettinger & Long, 2005). Moreover, many of the variables previously found to influence remediation can also not be assumed to be random. As such, researchers must rely on the use of matching and regression techniques to minimize selection bias (i.e., systematic differences between remedial and non-remedial students).

The quasi and non-experimental research on developmental education has shown mixed findings (e.g., Easterling, Patten, & Krile, 1998; Fike & Fike, 2008; Grimes & David, 1999; Jepsen, 2006; Kolajo, 2004; Lavin, Alba, & Silberstein, 1981; O’Connor & Morrison, 1997; Waycaster, 2001). In sum, results suggest that some, if not all, of the negative effects of remediation may be attributable to selection bias (Attewell et al., 2006; Bailey, 2009; Bettinger & Long, 2005; Grubb, 2001; Levin & Calcagno, 2008). For instance, Bettinger and Long (2005) found that remediation was no longer negatively related to student outcomes after controlling for students’ backgrounds. Similarly, Attewell et al. (2006) concluded that after appropriately controlling for high school preparation and academic skills prior to entering college, remediation did not significantly impact community college students’ chances of earning a two or four-year degree. Research that has controlled for selection bias also suggests that the impact of

developmental courses might be strongest during the first year of college (Weissman, Silk, & Bulakowski, 1997). Moreover, findings indicate that remediation may have a positive impact on short term outcomes such as persistence to the second year of college (Calcagno, 2007; Calcagno & Long, 2008), but may not significantly predict or cause longer term outcomes including earning an associate's degree or transferring to a four-year institution (Calcagno, 2007).

There are also studies that have found the effects of developmental courses to vary according to whether students enroll in remedial mathematics, reading and/or writing courses. Studying the effects of mathematics remediation has been of particular interest because more students enroll in math remediation than any other subject area Bahr (2007). Bettinger and Long (2005) found that students in Ohio who received remediation in math were 15 percent more likely to transfer to a four-year college when compared to students with similar test scores and high school academic preparation. However, participation in remedial mathematics was not shown to influence stop-out or degree completion. Further, work by Bahr (2008; 2010b) suggests that long-term academic outcomes among students who successfully complete remedial coursework in mathematics are comparable to students who did not require remediation.

Researchers have also begun to examine programmatic effects specific to developmental English courses finding that outcomes for students enrolled in remedial courses were similar to those enrolled in college-level English (Bettinger & Long, 2005; Moss & Yeaton, 2006). Bahr (2010b) found that students who successfully complete developmental work in English and continue to college level English have similar academic outcomes as students who do not need remediation. Findings also suggest that students who are in the greatest need of English remediation may be the most likely to benefit (Moss & Yeaton, 2006). Our review only identified one study examining the relationship between developmental writing and student

outcomes. The findings from this study show that taking developmental writing may have no effect on student persistence (Crews & Aragon, 2007). It should be noted however, that this study did not make any attempt to control for selection bias.

A few studies have also considered the role of taking more than one type of remedial course on student outcomes. Hoyt (1999) found that persistence rates and students' GPA decreased as the number of areas needing remediation increased for students. Additionally, a program evaluation by Kolajo (2004) found that students who took one developmental course graduated in less time and had higher grade point averages when compared to students who enrolled in two or more remedial courses. In contrast, the only study focused on the effect of taking multiple developmental courses to properly control for selection bias found that taking remedial courses does not disadvantage students (Attewell, et al., 2006).

### **Outcomes Specific to Hispanic Students**

It is imperative to understand how remediation influences Hispanic students' postsecondary choices and outcomes (Howell, 2011). As shown in Tables 1 and 2, our analysis of the BPS (04:06) data show several outcomes comparing developmental and non-developmental Hispanic students. Findings demonstrate that the average GPA for non-developmental students was higher than the average GPA for developmental students. However, a comparable percentage of non-developmental and developmental students were "successful" to the end of the second and third years of college, as defined as earning a degree or certificate or persisting in postsecondary education. In contrast, although comparable GPA's were earned by two- and four-year students enrolled in developmental courses, large differences were observed in terms of degree attainment and persistence. Eighty percent of four-year students who enrolled in developmental courses during the first year of college persisted to the end of the second year

of college compared to only 63 percent of students attending two-year institutions. Further, 74 percent of four-year students persisted to the end of the third year compared to only 58 percent of Hispanic students who began college at a two-year institution.

At first glance, these descriptive findings would suggest that developmental education has a positive effect on success outcomes for Hispanic students who first enroll at a four-year institution. Additionally, the BPS data would suggest a negative effect of developmental enrollment among Hispanic students who begin their postsecondary education at a two-year institution. However, as previously mentioned, it is more likely that these outcomes are largely a product of the characteristics of students and may or may not be related to participation in remedial courses. For instance, findings by Bahr (2010a) suggest that, although Hispanic students are significantly less likely to remediate successfully (in mathematics) when compared to White and Asian American students, disparities are largely a product of differences in math skills upon entering college. Unfortunately, with the exception of Bahr's work, very little research has been done to examine the impact of remediation on Hispanic college students that properly accounts for variables influencing developmental outcomes.

The most comprehensive study to date of Hispanic students enrolled in developmental education was conducted by Crisp and Nora (2010). The purpose of the study was to identify the demographic, pre-college, socio-cultural, environmental, and academic variables associated with the academic success of Hispanic community college students who intended to transfer to a four-year institution. We also specifically examined whether the variables related to success varied among developmental and non-developmental students. Findings from the BPS: 04/06 data suggest a benefit to Hispanic students enrolled in one or more remedial courses in the first and second years of college as the odds of persisting in college and/or earning a degree were found to

be higher among students who enrolled in a developmental course. However, no relationship was found between success outcomes and remedial coursework in the third year of college. Further, results suggest that the success of Hispanic students enrolled in developmental courses may be positively influenced by parental education levels. Additionally, working too many hours off-campus, not receiving enough financial aid to pay for college and enrolling part versus full-time may serve to negatively influence the success of developmental students.

### **Summary of Key Findings**

- There is a notable absence of rigorous research to date measuring the causal effect of developmental education on student outcomes (both Hispanic and non-Hispanic) that controls for selection bias.
- Although little is known about four-year Hispanic students who remediate, this group may not be substantially different from the broader group of Hispanic students who do not require remediation.
- Four-year Hispanic students who remediate during the first year may be more likely to persist or earn a degree compared to two and four-year Hispanic students who do not remediate.
- Two-year Hispanic students who enroll in remedial coursework are a diverse group who face a variety of significant challenges/barriers to their success (e.g., attending under-resourced K-12 schools, delaying entry into postsecondary education, being the first in their family to attend college).
- Developmental Hispanic students who begin their college education at a two-year college are the group at highest risk of withdrawing from college prior to earning a certificate or degree.

## **Recommendations for Research**

Methodologically sound and theoretically based evidence regarding the role of developmental education in Hispanic success outcomes is needed to inform policy and intervention efforts aimed at achieving equity in postsecondary education. It is notable that all but one study to date that has controlled for selection bias used a regression-discontinuity design (RD) which limits studying effects to students who score just below or above the cutoff score. In turn, much of our understanding of the causal effects of developmental education is limited to a subsample of students that excludes students with the highest remedial need. As such, we recommend research be conducted to examine the impact of remediation among students (Hispanic and non-Hispanic) who require high levels of remediation and/or remediation in more than one area (e.g., English and math). Additionally, work is needed to measure programmatic effects on additional student outcomes of interest and relevance, including time to degree and success in subsequent college-level courses. Further, the longitudinal impact of enrolling in developmental coursework among Hispanic students (two or four-year) has not been properly evaluated (Crisp & Nora, 2010).

Empirical attention should also be provided to understanding the contextual effects influencing developmental outcomes among Hispanic students. For instance, we suggest that work be done to better understand the role of racial composition on the effectiveness of remediation (i.e., extend work of Bahr (2010a)). Research is also needed to identify student support structures, institutional policies and programmatic features that can positively influence the impact of remediation such as placement testing and the quality of advising/mentoring (Bettinger & Long, 2005). Additionally, work is recommended to better understand how the institutional level and state contexts may be influencing student level outcomes for different

groups of students (including Hispanics). Moreover, empirical findings are needed that properly control for state policy level effects on remedial outcomes, as state level policies are also assumed to influence program effectiveness.

It is important to note that a tremendous amount of variance is assumed to exist across institutions/programs in terms of program characteristics and outcomes. As such, there is a need to funnel federal and state funds and resources toward program evaluations that are methodologically rigorous and draw upon conceptually sound frameworks (e.g., work by Levin & Calcagno, 2008) that are able to identify effective programs and program characteristics. Evaluations should give consideration to the influences of the institutional context and policies, programmatic efforts such as tutoring and advising, as well as the characteristics of the student body.

### **Recommendations for Policy and Practice**

If Hispanic students are not able to take and pass college-level courses they will not be able to earn a college degree. It is therefore imperative that we provide particular attention to identifying ways to support and develop Hispanic students who are academically underprepared. Hughes (2011) suggests that the issue be tackled at three points: (1) before college – goal being to avoid the need for remediation; (2) upon enrollment – improve assessment and placement; and (3) during remediation – accelerate, improve and contextualize pedagogy. Several strategies have been offered for reducing the need for remediation prior to college such as better aligning high school requirements with college content expectations and providing early intervention and financial assistance to students (Bahr, 2010a; Merisotis & Phipps, 2000). Once students enroll in college, experts suggest mandatory assessment, mandatory remedial placement, and providing appropriate counseling and support services (Bailey, 2009). Further, Merisotis and Phipps (2000)

suggest making remediation a comprehensive program. Once enrolled in college, various policies and practices can serve to improve the effectiveness of remediation including targeting interventions toward “low performers” in developmental courses (Bahr, 2010a), using a theory-based approach to teaching courses, encouraging professional development for faculty and staff who work with developmental students, and providing a centralized structure for developmental courses and services (Boylan, Bonham, & White, 1999).

We also recommend institutions consider piloting the following innovative developmental programs described by Bailey and Cho (2010):

1. **Accelerated Learning Programs (ALP’s)** – ALP programs “mainstream” students who place into remediation but score near the developmental cut-off point on assessments into college-level courses. Students are required to simultaneously enroll in an ALP class that is taught by the same faculty member and that meets immediately after the college-level course.
2. **I-BEST Model** – The I-BEST model is targeted toward students who have a specific vocational occupation in mind and who cannot afford to wait to finish remedial (basic skills) courses before enrolling in postsecondary education and training. In the I-BEST model, developmental instructors and professional occupational faculty co-teach college level occupational classes that enroll basic skills students with the intention of accelerating the rate students can advance to college-level programs.
3. **Learning Communities** – Learning communities exist in a variety of forms and for a variety of purposes. However, in the context of promoting success for developmental students, learning communities are designed to serve academically underprepared students. Developmental learning communities co-enroll a cohort of students into two or

more classes that may have integrated curricula, involve collaboration between faculty members, and/or embed advising and tutoring into the linked courses (Bailey & Cho, 2010).

Finally, we recommend that institutions engage in regular and systematic evaluation of developmental courses and policies. The effects (positive or negative) cannot be known without systematic evaluation and institutions should not assume a program or policy to be effective without empirical evidence (Levin & Calcagno, 2007). Engaging in consistent formative and summative evaluation of developmental activities has been shown to be related to success. This is particularly true when the results of a formative evaluation is shared with program faculty and staff and used for program improvement (Boylan, Bonham, & White, 1999).

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