



# INCREASING POSTSECONDARY COMPLETION TO BUILD A FUTURE-READY WORKFORCE AND STRENGTHEN PATHWAYS TO ECONOMIC MOBILITY

Robert Nathenson | Alexandria Walton Radford<sup>a</sup>

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## The Challenge

Today's globally competitive environment is characterized by the ongoing shift from an industrial economy to a knowledge economy, and by rapid technological advancement. In this environment, the attainment of quality<sup>b</sup>, postsecondary credentials is critical to help Americans avoid unemployment and access good-paying jobs.<sup>1</sup> (Exhibit 1 illustrates the relationship between education and unemployment during economic downturns, including the COVID-19 pandemic.) The importance of postsecondary education in securing socioeconomic opportunity is only expected to grow. Currently, 80% of all "good" jobs<sup>c</sup> require at least some education or training beyond high school,<sup>2</sup> and many of the fastest growing jobs require a postsecondary degree.<sup>3</sup>

Despite the current and growing importance of postsecondary education, only 46% of Americans aged 25 to 64 had an associate's or bachelor's degree in 2017. Attainment rates among more recent generations of Americans are only slightly better (48% and 50% for those aged 25 to 34 and 35 to 44, respectively).<sup>4</sup> While postsecondary degree attainment in the United States is about 10 percentage points higher than it was in 2000, we have not kept pace with the rest of the world.<sup>5</sup> The United States ranks

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<sup>b</sup> The Lumina Foundation is a prominent funder and leader in postsecondary education. It defines quality credentials as "degrees, certificates, industry certifications, or other credentials that—at a minimum—have clear and transparent learning outcomes and that lead to meaningful employment and to further learning" (<https://www.luminafoundation.org/news-and-views/lumina-quality-credentials-task-force-unveils-new-approach-to-assure-quality-of-post-high-school-learning>).

<sup>c</sup> Georgetown University's Center on Education and the Workforce defines these "good jobs" as those that pay at least \$35,000 for workers age 25 to 44, and at least \$45,000 for workers age 45 to 64.

## Acknowledgment

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11th in the percentage of 25- to 34-year-olds with a postsecondary degree, with a rate of 48%; Canada's rate for the same age group is 61%.<sup>6</sup> Moreover, the United States exhibits large gaps in educational attainment by race and socioeconomic status. In 2017, about 62% of Asians and 49% of Whites held an associate's degree or higher, compared with 35% of Blacks and 25% of Latinos.<sup>7</sup> The likelihood of children enrolling in college and completing a credential is also strongly correlated with their parents' socioeconomic status.<sup>8</sup>

## Potential Solutions

There are two main levers for improving postsecondary credential attainment: (a) increasing the number of Americans who enroll in a postsecondary institution, and (b) increasing the proportion of Americans who complete a

postsecondary credential once enrolled. This research brief focuses on the second lever: completion of a postsecondary credential. A companion brief, *Increasing Postsecondary Enrollment to Build a Future-Ready Workforce and Strengthen Pathways to Economic Mobility*, tackles the first lever of enrollment.

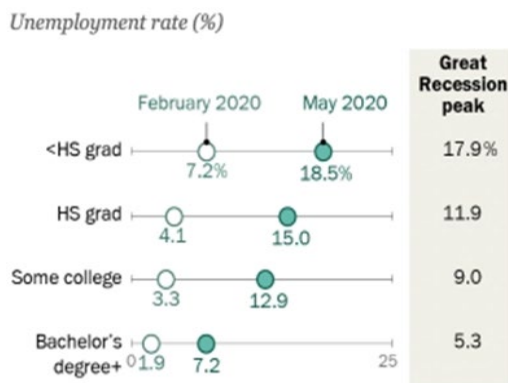
While college completion rates have increased by about 4 percentage points in the last 6 years,<sup>9</sup> there is still a great deal of room for improvement. Just 39% of Americans who started an associate's degree in 2011–12 had earned any type of postsecondary credential (a certificate, associate's degree, or bachelor's degree) 6 years later. The rate was 57% for those who started in a certificate program, and 71% for those who started in a bachelor's degree program.<sup>10</sup> In terms of the number of students lost, a 2019 study found that more than 36 million U.S. students had enrolled in college since 1993 but had failed to earn any credential and were no longer persisting toward earning a credential.<sup>11</sup>

There are also important equity gaps in who completes a postsecondary credential. By race, 43% of Black students who started postsecondary education for the first time in 2011–12 had left without a credential within 6 years of starting, compared with 29% of White students and 34% of Hispanic students.<sup>12</sup> By parents' education, 43% of students whose parents had a high school degree or less left without a credential, compared with just 19% of students whose parents had a bachelor's degree.<sup>13</sup> Looking at income, 28% of dependent students whose parents earned less than \$30,000 left without a credential, compared with just 12% of students whose parents earned \$90,000 or more.<sup>14</sup> Students with work and child responsibilities also tend to face challenges in completing their credentials. Thirty-eight percent of students who worked 35 or more hours a week left without a credential,<sup>15</sup> as did around half of students (unmarried or married) with one or more dependents (53% and 49%, respectively) and around half of students who first enrolled at age 25–29 or age 30 or older (56% and 50%, respectively).<sup>16</sup>

Many things can be done to improve postsecondary completion. We can better address gaps in college readiness. We can improve the ways in which we deliver postsecondary education (e.g., online, through

### Exhibit 1. Unemployment by Educational Attainment

**Less-educated workers are seeing higher unemployment in COVID-19 downturn, as in the Great Recession**

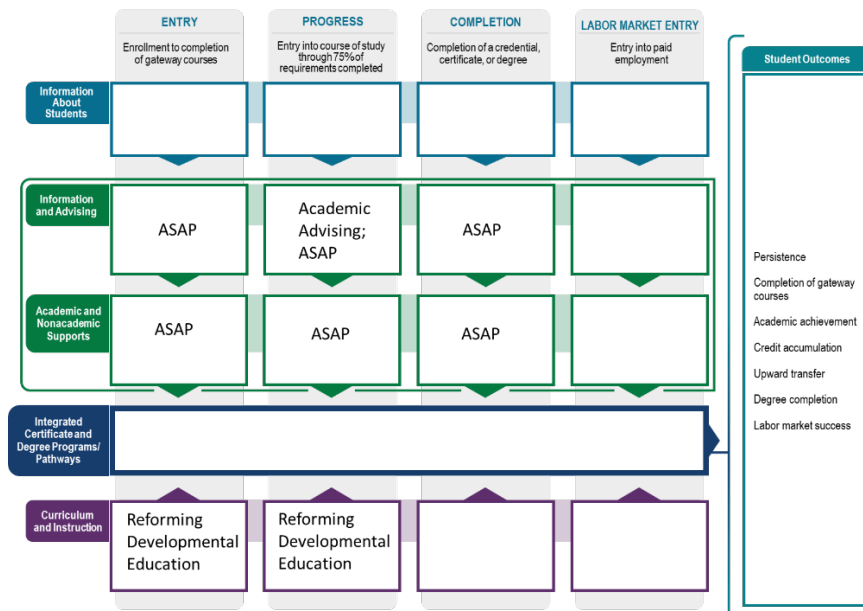


Source: [Pew Research Center](#)

competency-based education, etc.), and we can improve the way we teach by incorporating active learning and adaptive learning to help students’ mastery of subjects and foster their persistence. We can also improve academic and nonacademic supports and interventions that address the needs of today’s students and help them to stay enrolled and complete their credentials. In this brief, we discuss three different, evidence-based approaches to foster credential completion: (a) reforms to developmental education, (b) academic advising, and (c) the Accelerated Study in Associate Programs (ASAP) model.

Exhibit 2 presents a conceptual framework illustrating the factors that influence college students’ success at various stages of their postsecondary journey (entry, progress, completion, and transition into the labor market).<sup>d,17</sup> This conceptual framework helped us to understand where our focal programs fit within the broader ecosystem of efforts designed to improve postsecondary student outcomes. Key “functional areas” within colleges include information about students, career and academic advising, academic and nonacademic supports, and curriculum and instruction. Some interventions target particular phases of the postsecondary journey, such as first-year seminars that aim to help students adjust to college. Other interventions follow and adapt to students’ needs throughout their journey. In an ideal world, each functional area would support the operation of integrated certificate and degree programs or pathways (row 4 in the exhibit), and all functional areas would be tightly linked and work together to promote success. The reality at most institutions, however, is that these key functions are siloed.

**Exhibit 2. Conceptual Framework for College Student Success Combined With the Three Interventions Reviewed in This Brief**



<sup>d</sup> Our conceptual framework was developed by the AIR College Completion Network project team, which includes Trey Miller, Amy Feygin, Lisa Shimmel, and Emily Loney; and Eric Bettinger at Stanford University. It was developed to guide a project focused on uncovering evidence-based strategies for increasing college completion rates. This framework borrows from Completion by Design’s “Loss/Momentum Framework,” which depicts how different policies, practices, and programs have the potential to influence student experiences and success in postsecondary education.

## Reforming Developmental Education

Upon entering college, many students are identified as being underprepared.<sup>18</sup> In such cases, colleges “typically require [these] students, who are [deemed] not college-ready in one or more subjects, to enroll in developmental education”.<sup>19</sup> Developmental education—also known as prerequisite remediation—is a *series of non-credit-bearing courses* (most commonly in mathematics and English) that such students must take and successfully complete *before being allowed to enroll* in credit-bearing coursework for their chosen program or major. Evidence indicates that students of color and low-income students are more likely to be placed in developmental education classes in their first year of college. As noted, these students are also more likely to drop out before completing their intended postsecondary degrees.<sup>20</sup> This type of remedial education costs students and their families an estimated \$1.3 billion each year.<sup>21</sup> However, a recent meta-analysis found that placement in developmental education often has significant and substantive negative effects on passing related college-level courses, earning college credit, and obtaining a degree.<sup>22</sup> The use of Pell Grants on noncredit remedial coursework rather than credit-bearing courses is also a concern, as students may run out of funds before completing their credentials.

As evidence accumulates on the negative effects of placing students in developmental education, a number of alternative models (e.g., supplemental instruction, corequisite remediation) have been developed to better serve underprepared, and especially underrepresented, students. By 2016, more than one third of community colleges had adopted reforms to traditional developmental education<sup>23</sup> and more than 20 states were encouraging such reforms.<sup>24</sup>

Of the 19 developmental education studies reviewed by the What Works Clearinghouse (WWC), only one met WWC group design standards without reservations.<sup>25</sup> We also identified three additional recent studies focused on reforming developmental education that have not yet been reviewed by WWC but appear to meet WWC standards with or without reservations<sup>26</sup>

Our review of the evidence base on reforms to developmental education focused on corequisite courses, shorter courses, and the addition of supplemental study-skills courses. As the text box on this page and Appendix Table 1 highlight, three of the four reviewed interventions had positive effects on passing a developmental education course, but just one had a positive effect on longer term

### Evidence Review

- *Goal:* Revise traditional postsecondary remedial education to better prepare students who are not deemed college ready, often by directly enrolling students in credit-bearing courses
- *Population:* Two- and 4-year college students who are perceived to be underprepared and are traditionally placed in developmental education or remedial courses
- *Key Types of Developmental Education Reform:* (a) Paired courses, (b) extended instructional time, (c) accelerated learning programs, (d) academic support, and (e) technology-mediated models
- *Major Findings:*
  - Mixed on passing developmental-level courses, enrolling in a subsequent credit-bearing course, persisting in college, and transferring to a 4-year institution
  - No impact on graduation
- *Methodological Approaches:* Randomized controlled trial, regression discontinuity and difference-in-regression-discontinuity, propensity-score matching

college persistence. Furthermore, developmental education reforms do not appear to have positive effects on postsecondary completion or degree attainment, suggesting that there is still much to learn in this area.

## Academic Advising

Many students—especially first-generation college students and historically disadvantaged groups who may be less familiar with navigating the intricacies of college—can benefit from effective advising in college. We define academic advising as developing and supporting students’ long-term educational goals and implementing the necessary steps to achieve those goals, such as discussing degree and major choices, developing an academic plan, selecting course schedules, and registering for courses in the appropriate sequence. Additional potential benefits of academic advising include improving students’ institutional knowledge and facilitating greater integration in and engagement with the institution.

The evidence base in this area is underdeveloped. Many existing programs, such as ASAP (discussed later in this brief), bundle academic advising with other supports, making it difficult to isolate the impact of academic advising on student outcomes. The College Completion Network (CCN) at the American Institutes for Research (AIR) is currently conducting a systematic review of postsecondary academic advising. To date, CCN has identified 78 relevant studies; this brief focuses on the four studies that involved rigorous evaluations. Two of these reviewed studies focused on *outreach and increasing access* to advising (e.g., messaging, guaranteed access to a counselor).<sup>27</sup> The other two studies focused on actual *academic advising or coaching*.<sup>28</sup> Note that our review focused on interventions that occur after a student arrives on campus and are administered by or on behalf of the university, including by faculty, staff, and other university representatives; we did not examine student-to-student peer-mentoring supports.

### Evidence Review

- **Goal:** To support students’ college achievement, persistence, and graduation
- **Population:** All 2- and 4-year postsecondary students, often first-year students/underclassmen
- **Key Components:** (a) Access to academic advising, (b) one-on-one academic advising and/or student coaching, (c) integrated data systems, and (d) predictive analytics to fuel advisor/coach outreach and strategies
- **Major Findings:**  
For studies focused on outreach and increasing access to advising:
  - positive, significant impacts on contacts with an advisor, scheduling and attending appointments, and completing an academic plan
  - no impacts on persistence, grade point average (GPA), credit hours, or graduationFor studies focused on academic advising/coaching:
  - positive, significant impacts on persistence, GPA, and completing a degree within 4 years
- **Methodological Approach:** Randomized control trial, propensity score matching

Better academic advising—particularly when this involves the effective use of predictive analytics, coupled with strong wraparound supports—appears to be an important potential lever for boosting postsecondary completion rates. As the text box on the previous page and Appendix Table 1 indicate, the two evaluations of programs with these features found positive effects on persistence, GPA, and the completion of a degree within 4 years. In contrast, advising efforts that focused more narrowly on increasing access to or use of postsecondary academic counseling had positive effects on contacts with an advisor and the completion of an academic plan, but no effects on persistence, GPA, credit hours earned, or graduation.

## Accelerated Study in Associate Programs

The ASAP model is a comprehensive model, developed by the City University of New York (CUNY), that provides up to 3 years of support to *full-time* students enrolled in associate’s degree programs. It includes financial supports (free public transportation, free textbooks, and tuition waivers); academic supports (early registration and tutoring); and personal supports (advising, blocked or linked courses, and seminars;<sup>29</sup> The text box on this page and Appendix Table 1 describe findings for the ASAP model, as implemented at both CUNY and community colleges in Ohio. In summary, evaluations have found ASAP to have positive effects on college persistence, credits earned, and degree attainment.

### A Path Forward

**Key takeaways.** Interventions that focus on a very specific “leak” in the postsecondary pipeline may help to address that particular issue, but they do not have lasting effects on reaching the ultimate goal of increasing credential completion.<sup>c, 30</sup> These include models of developmental education reform and interventions geared towards increasing contact with academic advisors, which have produced inconsistent results. However, more encompassing interventions, such as ASAP, which feature a strong

#### Evidence Review

- *Goal:* Improve the 3-year graduation rate among community college students
- *Population:* Low-income, full-time community college students who need developmental coursework and are enrolled in degree programs lasting 3 years or fewer
- *Key Components:* (a) Financial supports (tuition waivers, transportation, textbooks); (b) academic supports (early registration and tutoring); and (c) personal supports (advising, summer institute, blocked or linked courses). Requires full-time enrollment.
- *Major Findings:*
  - Positive, significant effects on enrollment, completion of developmental education, credit accumulation (in part due to credits earned during shortened summer and winter intersessions), persistence, and transfer to a 4-year college
  - Increases in 3-year graduation rates of 18.3 percentage points (New York) and 15.6 percentage points (Ohio)
- *Methodological Approach:* Randomized control trial
- *Cost:* \$5,428 (New York) and \$2,676 (Ohio) per student, per year

<sup>c</sup>Others have also suggested that isolated interventions, although helpful, rarely impact completion on their own (Bailey et al., 2015).

model of comprehensive wraparound supports (including academic, personal, and financial supports), yield stronger impacts. This finding is consistent with our student success conceptual framework presented in Figure 2.

**Proposed next steps to increase postsecondary completion.** AIR has noted experience in researching developmental education reform, has studied the work of and established connections with leaders in the academic advising field, and is conducting a study to deepen our understanding of the supports needed for nontraditional students. We can build on this experience and the evidence reviewed here to help fill key research gaps in this space. The ultimate goal is to inform and support the design, implementation, and scaling of evidence-based postsecondary advising and wraparound support programs to help maximize their impact and increase postsecondary degree attainment rates *at scale*. Two key elements of a learning agenda will help to accomplish this.

- *Innovative advising models.* Our review of advising models found mixed results. Those that focused on strengthening academic advising and coaching yielded more promising results than those with a narrower focus on increasing access and/or visits to an advisor. To further build on the positive aspects of advising, we should continue to explore the potential benefits of integrating predictive analytics into advising. This approach shows promise (particularly at Georgia State University) but currently has a limited evidence base. To integrate predictive analytics into advising, colleges would need to develop and deploy targeted responses (based on analytics) to address students' needs. Few have taken such steps to date, highlighting the tremendous need for research and evaluation to identify what works, for whom, and under what circumstances, and to then incorporate this knowledge into practice at many more institutions.
- *Adapting wraparound supports for nontraditional students.* The ASAP model has yielded strong impacts but is limited in its reach as it only serves full-time students. During the 2015–16 academic year, 48% of all undergraduates enrolled part-time in college.<sup>31</sup> At public 2-year colleges, 71% of students attended part-time,<sup>32</sup> as did nearly two thirds of students (63%) who were financially independent from their parents.<sup>f,33</sup> Independent students may find it particularly challenging to attend college full-time, given other work and family responsibilities. Forty percent of independent undergraduates worked full-time while enrolled,<sup>34</sup> and more than half had at least one dependent.<sup>35</sup> Given the COVID-19 pandemic and recession, we anticipate a counter-cyclical increase in the number of permanently displaced, financially independent adults enrolling or re-enrolling in postsecondary education to upgrade their skills or train for a new occupation. These independent students—the majority of whom will attend part-time—will need supports to be successful too. We envision two



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<sup>f</sup> Independent students are defined as having one or more of the following characteristics: at least 24 years old, married, a professional student, a veteran, a member of the armed forces, an orphan or ward of the court since age 13, an emancipated minor, homeless or at risk of becoming homeless, and/or has legal dependents other than a spouse.

strategies for better serving part-time students. First, we must identify and implement supports that would allow some of these students to attend full-time. These could include, for example, providing childcare<sup>§, 36</sup> and more generous financial aid (e.g., income support). Second, we must develop, implement, and scale models that facilitate the success of students whose circumstances will not allow them to attend college full-time. These models could include features such as ensuring that on-campus services like tutoring offer some hours during evenings and on weekends, enabling students with work and childcare demands during weekdays to access them.<sup>37</sup> These new models should also consider how supports that have proven helpful when offered to full-time students can be expanded, adapted, and best delivered to part-time students.

Attaining a postsecondary credential is critical to Americans' future economic stability and opportunity and yet there are significant equity gaps in who completes such a credential. We must use research and evaluation to better understand the experiences and needs of today's students and then use that data-informed understanding to develop programs and policies that better support them. Only then can we close these completion gaps and help students to reach their goal of earning a postsecondary credential.

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<sup>§</sup> Previous results suggest that accessing on-campus childcare can have a dramatic impact on earning an associate's degree and transferring to a 4-year program.



**Appendix Table 1. Programs/Interventions for College-Bound Students**

Intervention	Features	Evidence
<i>Reforming Developmental Education</i>		
Miller et al., n.d. (under review) <sup>38</sup>	Randomized control trial of corequisite remediation, compared with traditional developmental education, for 1,780 newly enrolled students at five Texas community colleges in fall 2016, spring 2017, fall 2017, or fall 2018	A positive impact on passing English by the following semester
Rutschow, Cullinan, & Welbeck, 2012 <sup>39</sup>	Randomized control trial of assignment to a college success course, compared with standard college services, during the spring 2008, fall 2008, or spring 2009 semesters for 911 students located at all three campuses of Guilford Technical Community College in North Carolina	No positive significant results
Weisburst et al., 2017 <sup>40</sup>	Propensity score matching comparing two alternative developmental education reform models (a concurrent study-skills course and a shorter developmental education mathematics course) with traditional developmental education among 88,461 first-time-in-college students enrolled from fall 2011 to fall 2013 in 50 Texas public community college systems	For both developmental education reforms, there were positive impacts on passing the mathematics developmental education course, passing the first college-level mathematics course, and taking a college-level mathematics course in the first year. For the short developmental education mathematics course only, there were positive impacts on taking the first college-level mathematics course by the end of first year, taking the first college-level mathematics course by the end of second year ( $p < .1$ ), passing the first college-level mathematics course by the end of second year ( $p < .1$ ), and transferring to a 4-year institution. For the student success course only, there were positive impacts on taking the first college-level mathematics course ( $p < .1$ ), 1-year persistence, and 2-year ( $p < .1$ ) persistence.
Ran & Lin, 2019 <sup>41</sup>	Regression discontinuity and difference-in-regression-discontinuity analysis of systemwide corequisite remediation reform for 35,707 first-time students enrolled in any fall semester between 2010–11 and 2016–17 at any of the 13 community colleges affiliated with the Tennessee Board of Regents	A positive impact on the likelihood of passing gateway mathematics and English within 1 year of enrollment, similar gateway mathematics course completion rates to students that take college-level mathematics directly, and an increased likelihood of passing a subsequent college-level mathematics course

Intervention	Features	Evidence
<b>Academic Advising</b>		
Bettinger & Baker, 2014 <sup>42</sup>	Randomized control trial of InsideTrack's student coaching services for 13,555 students during the 2003–04 and 2007–08 school years across eight higher education institutions	Positive impacts on 6-, 12-, 18-, and 24-month retention, as well as any degree completed within 4 years ( $p < .1$ )
Kot, 2014 <sup>43</sup>	Propensity score matching of centralized academic advising for 2,745 first-time, full-time freshman students enrolled in fall 2010 at a large, public, metropolitan research university	Positive impacts on first-year grade point average (GPA) and the likelihood of returning for second year
Schwebel et al., 2012 <sup>44</sup>	Randomized control trial of receiving advising outreach for 501 students enrolled in fall 2007 at the University of Alabama at Birmingham	A positive impact on the number of contacts with an advisor
Visher et al., 2016 <sup>45</sup>	Randomized control trial of guaranteed access to one of two advising interventions (group advising workshop or individual academic counseling) for 1,763 first-time students enrolled in fall 2014 at Saddleback College, part of the South Orange County Community College District in California	Positive impacts on scheduling a counseling appointment, attending a counseling appointment, and completing an academic plan
<b>Wraparound Supports (ASAP)</b>		
Miller et al., 2020 <sup>46</sup>	Three-year results for the randomized control trial of ASAP for 1,501 eligible students recruited prior to the spring 2015, fall 2015, or spring 2016 semesters at Cincinnati State Technical and Community College, Cuyahoga Community College, and Lorain County Community College in Ohio	Positive impacts on fourth-semester, full-time enrollment; cumulative total credits earned by semester 6; and earning a degree by semester 6
Scrivener et al., 2015 <sup>47</sup>	Three-year results for the randomized control trial of ASAP for 896 eligible students (treatment assignment occurring prior to the spring 2010 or fall 2010 semester) enrolled at Borough of Manhattan Community College, Kingsborough Community College, and LaGuardia Community College within the City University of New York	Positive impacts on second-semester enrollment in the main session, enrollment in a 4-year college by semester 6, total credits earned, completion of developmental requirements, and earning a degree by semester 6

Intervention	Features	Evidence
Sommo et al., 2018 <sup>48</sup>	Two-year results for the randomized control trial of ASAP for 1,501 eligible students recruited prior to the spring 2015, fall 2015, and spring 2016 semesters at Cincinnati State Technical and Community College, Cuyahoga Community College, and Lorain County Community College in Ohio	Positive impacts on first-semester, full-time enrollment; cumulative credits earned by semester 4; and earning a degree by semester 4
Weiss et al., 2019 <sup>49</sup>	Long-term (6-year) results for the randomized control trial of ASAP for 896 eligible students (treatment assignment occurring prior to the spring 2010 or fall 2010 semester) enrolled at Borough of Manhattan Community College, Kingsborough Community College, and LaGuardia Community College within the City University of New York	Positive impacts on the percentage of students enrolled full-time by semester 6, total credits earned by semester 6, and earning a degree by semester 6

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