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"WHAT WORKS" FOR COMMUNITY COLLEGE STUDENTS?

A Brief Synthesis of 20 Years of MDRC's Randomized Controlled Trials

What works to help community college students progress academically? This brief synthesizes 20 years of rigorous research by MDRC, presenting new evidence about key attributes of community college interventions that are positively related to larger impacts on students' academic progress.[1]

FINDINGS

Findings are based on a synthesis of evidence from 30 randomized controlled trials of 39 postsecondary interventions involving 60,000 students.[2] The results of this research consistently indicate that the impacts of community college interventions increase with:

- The comprehensiveness of the intervention, as measured by its number of components
- The promotion of full-time enrollment (during fall and spring) and summer enrollment

Less consistent, but still promising evidence suggests the impacts of community college interventions also increase with the extent that they increase:

- Advising use among students
- Tutoring use among students
- Financial support for students (though the evidence is least consistent for this component)

Consequently, the preceding five intervention features seem like a reasonable, evidence-based place to start when developing community college policy, designing a new community college intervention, or enhancing an existing community college intervention.

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BUILDING KNOWLEDGE TO IMPROVE SOCIAL POLICY

BACKGROUND

In the fall of 2020, community colleges served nearly five million students, representing 29 percent of U.S. undergraduates.[3] Although community colleges are providing these students with access to postsecondary education, the colleges' graduation rates remain low. Among first-time, full-time students seeking degrees or certificates whose first postsecondary school is a two-year, public institution, only 31 percent graduate within three years.[4]

Practitioners and scholars have identified multiple systemic issues, institutional practices, and student-level barriers that appear to lead to these low graduation rates.[5] These impediments include, among others:

- The financial costs of attending school (for tuition, fees, housing, transportation, food, etc.)
- The competing time and resource demands on students of school, work, and family responsibilities
- The complex institutional systems students must navigate (for example, to meet financial aid and degree requirements)
- Underfunded student support services
- Campus environments that do not foster a sense of belonging for all students
- Insufficient student preparation for college-level work, often due to negative systemic influences on students' educational preparation (for example, the absence of academically rigorous high school course offerings)[6]

Many community college interventions have been implemented to address the challenges created by these impediments. The activities or components that comprise these interventions vary; they include, for example, financial support, enhanced advising, tutoring, and student success courses (described in more detail below). This variation reflects differences in the impediments each intervention was designed to address and differences in available resources for implementing the interventions. In addition, the comprehensiveness of interventions varies; some have just a single component, while others have different combinations of multiple components.

Randomized controlled trials have found that some such interventions cause students to perform better academically. However, there are few syntheses of the findings from this growing body of research. Existing meta-analytic syntheses tend to focus on specific intervention types (for example, learning communities, described below) or student subpopulations (for example, students referred to developmental—remedial—education), or include studies using research designs requiring strong assumptions to draw causal conclusions about interventions' effectiveness. The present synthesis looks at rigorous evaluations of a broad array of community college interventions that included a variety of student populations, to explore two main questions:

- What relationships exist between the comprehensiveness of interventions (measured by the number of components) and intervention impacts on students' academic progress?
- What relationships exist between the intensity of specific intervention components and intervention impacts on students' academic progress?

INTERVENTION COMPONENTS

This section reviews the intervention components that are a part of this research exploration. These components were selected because they were a core component in several (or more) interventions that are part of this synthesis, and they are likely common components in community college interventions more generally.

Financial support: To reduce financial barriers to student success, community college interventions often provide financial support in the form of scholarships, tuition waivers, free textbooks, or transportation subsidies. If such support can help students afford to attend community college, reduce their need to work for pay, or reduce their need for loans, it can reduce financial stress and competing demands on students' time. In addition, some forms of financial support, like the provision of cash for attending required advising sessions, are designed to provide an incentive for desired student actions.

Enhanced advising: Many community college interventions provide enhanced advising to help students navigate complicated institutional systems, identify and address specific academic or personal problems, and make connections to other needed resources. At a minimum, most enhanced advising interventions promote the increased use of advising services, and many assign students to a dedicated adviser who can provide frequent, ongoing support. In these situations, students may be required to attend a specified number of advising sessions. Financial incentives have been used to encourage students to make more use of advising services.

Tutoring: Tutoring is commonly available at community colleges. To promote the increased use of tutoring, some interventions have explicitly encouraged students to use it, provided incentives for using it, or required it. Tutoring may be promoted for all students or to a specific subgroup of students (such as those doing poorly academically) to help them pass specific courses. For example, students who are referred to developmental education courses might receive enhanced tutoring in those subjects (in addition to taking the courses) to prepare them for regular, college-level work.

Learning communities: Learning communities enroll small groups of students at the same time in two or more courses with mutually reinforcing themes and assignments and faculty members who try to coordinate their efforts. These courses usually last one semester and occasionally provide added support, such as advising or tutoring.

Student success courses: Some community college interventions include a student success course that is designed to help new students navigate college and build personal and academic skills. Common

course topics include information about a student's college, assistance in academic and career planning, and techniques for setting goals and improving study skills. Success courses are taught by a range of staff members, including instructors who teach other courses and academic advisers who typically do not teach courses.

Promoting full-time or summer enrollment: Enrolling full time or during the summer are indicators of academic momentum that are associated with improved student outcomes.[7] To promote this behavior, some interventions provide financial or other incentives to enroll in school full time or in the summer.

Instructional reform: Although instructional approaches vary across community college classrooms, heavy reliance on lectures remains a common approach. Some recent instructional reforms include, among other things, techniques for having students take a more active role in learning through discussion, the use of technology to tailor instruction to individual students' needs, modifying developmental math courses to better align with students' programs of study, and integrating developmental reading and writing so students can use each skill to build the other.

When reforming their policies or designing new programs, institutions can choose among these intervention components in accordance with their budget, personnel, and institutional constraints. Rigorous evidence about how these components are related to intervention impacts can help to inform such decisions.

RESEARCH METHODOLOGY: DESIGN, DATA, OUTCOMES, ANALYSIS, AND INTERPRETATION

This section provides an overview of the data, outcomes, and methodology used to produce findings for the present research brief.[8]

Design

The present findings were obtained from an analysis of individual-level data from 30 well-executed randomized controlled trials.[9] These trials evaluated 39 interventions (several trials evaluated more than one intervention) for a total sample of over 60,000 students from 45 (mostly) community colleges throughout the United States. To address the two research questions introduced earlier, statistical analyses were conducted to investigate the extent to which specific intervention features predict intervention impacts on student academic outcomes (credits accumulated and continued enrollment).[10]

Data

Student-level data for the present analysis are mainly from MDRC's The Higher Education Randomized Controlled Trials Restricted Access File (referred to hereafter as THE-RCT), which is housed at the University of Michigan's Inter-university Consortium for Political and Social Research.[11] THE-RCT includes information about each randomized controlled trial plus data on its student academic

outcomes by semester. All evaluation studies and interventions represented in THE-RCT were also documented by reports, journal articles, or research and policy briefs. Those sources contain information about intervention components and their implementation, fidelity, and so forth. The information about each intervention's components was used to quantify its comprehensiveness, as measured by the number of its identifiable components. The information about each intervention's components was also used to quantify the intensity of each component (for example, enhanced advising), typically in terms of its quantity (for example, the average number of additional times students spoke with their advisers because of the intervention).

The 39 interventions that were studied were highly diverse, ranging in scope from moderate-intensity approaches such as informational campaigns (for example, Encouraging Additional Summer Enrollment) to comprehensive interventions such as the City University of New York's Accelerated Study in Associate Programs (CUNY ASAP) initiative. These interventions also targeted varying student populations such as students from low-income households, students who were new to college, and students who were referred to remedial courses. Hence, the studies provide a rare opportunity to learn important new lessons from variations in intervention features and impacts.

Table 1 summarizes the prevalence of each intervention component across the 39 interventions, along with the comprehensiveness of those 39 interventions. Financial support, the most prevalent component, was present in 51 percent of the interventions studied. The next most prevalent components are enhanced advising (38 percent) and promoting full-time/summer enrollment (33 percent). The least prevalent intervention components are learning communities and success courses (both 23 percent).

Intervention comprehensiveness also varies considerably. For example, 59 percent of the interventions included two or more components. This high rate of multifaceted interventions indicates a major challenge faced by the present analysis: the difficulty in identifying the unique contribution, or separate impact, of each intervention component. Also, only 15 percent of the interventions studied had four or more components. This percentage suggests that highly comprehensive interventions are relatively rare or infrequently evaluated.

Outcomes

Findings from the present analysis are based on two student outcome measures: total credits accumulated by the second semester after students entered their intervention studies, and the percentage of students who were still enrolled during the third semester after they entered their intervention studies. These outcome measures are proxies for student progress toward a postsecondary degree. Degree completion and transfers to four-year colleges are not examined directly because most studies did not track their full samples of students for three years, which is a common time frame to examine community college degree completion.

Analysis

The analyses examine the relationship between the size of intervention impacts and their features. For example, analyses explore the extent to which more comprehensive interventions had larger

TABLE 1

PREVALENCE AND NUMBER OF COMPONENTS ACROSS INTERVENTIONS

INTERVENTION COMPONENTS	PERCENTAGE OF INTERVENTIONS
Presence of component	
Financial support	51
Enhanced advising	38
Tutoring	28
Learning communities	23
Success course	23
Promotion of full-time/summer enrollment	33
Instructional reform	26
Comprehensiveness (number of components)	
0	3
1	38
2	23
3	21
4	5
5	5
6	5
Number of interventions	39

SOURCE: MDRC calculations based on reports and journal articles. Links to reports and articles can be found in THE-RCT documentation.

NOTE: One intervention consisted of financial aid reform that did not result in any increase in the amount of aid distributed. It is therefore the only intervention characterized as having no components.

impacts. Similarly, analyses examine the extent to which interventions that offered greater financial support had larger impacts.

Because each intervention was evaluated using a randomized controlled trial, its estimated impact can be interpreted as being *caused* by the intervention. For example, the Detroit Promise Path intervention caused students, on average, to earn an additional 1.73 credits after one year. These are credits students would not have earned in the absence of Detroit Promise Path.

Although each intervention's impacts can be interpreted causally, the relationships between intervention features and intervention impacts reflect associations that are not necessarily causal. These relationships describe how, on average, intervention impacts varied across different intervention features. It is not possible to determine the extent to which these changes were caused by the intervention features themselves, or by other factors that were not accounted for in the analyses.

Consequently, although these analyses can suggest causal relationships between intervention impacts and intervention features, they cannot confirm them.

In addition, each of the present findings is based on a series of analyses that help to assess the robustness of the finding. For example, findings for a specific intervention feature were estimated both for the feature by itself (to document its overall relationship with intervention impacts) and for the feature together with other features (to help disentangle their potentially interrelated causal effects on student outcomes). In addition, all analyses were conducted both for all interventions in the present sample, and without two "outlier" interventions whose impact estimates were so large that they could have had undue influence on the results.[12]

All the preceding analyses were conducted for two different student outcome measures: (1) the number of course credits accumulated during the first year after students entered their intervention, and (2) the percentage of students who were enrolled during the third semester after they entered their intervention.

Based on the consistency of findings from these multiple analyses, the results for each intervention feature were categorized as providing "consistent" evidence of a positive relationship with intervention impacts, "mixed" evidence, or no evidence.

RESEARCH FINDINGS

The results of the present research synthesis provide *consistent evidence* that, on average, intervention impacts increase with the number of intervention components. The results also provide consistent evidence that impacts are larger for interventions that promote full-time enrollment in the fall and spring plus increased summer enrollment (compared with interventions that promote fewer of these activities).

The results provide *mixed evidence* that three other intervention components are positively related to impacts: increased (compared with business-as-usual) advising, tutoring, and financial support (with the latter having the least consistent evidence).

On the other hand, for learning communities, success courses, and instructional reforms, there was no evidence of a discernable relationship between the size of an intervention's impacts and the presence or intensity of those intervention components.

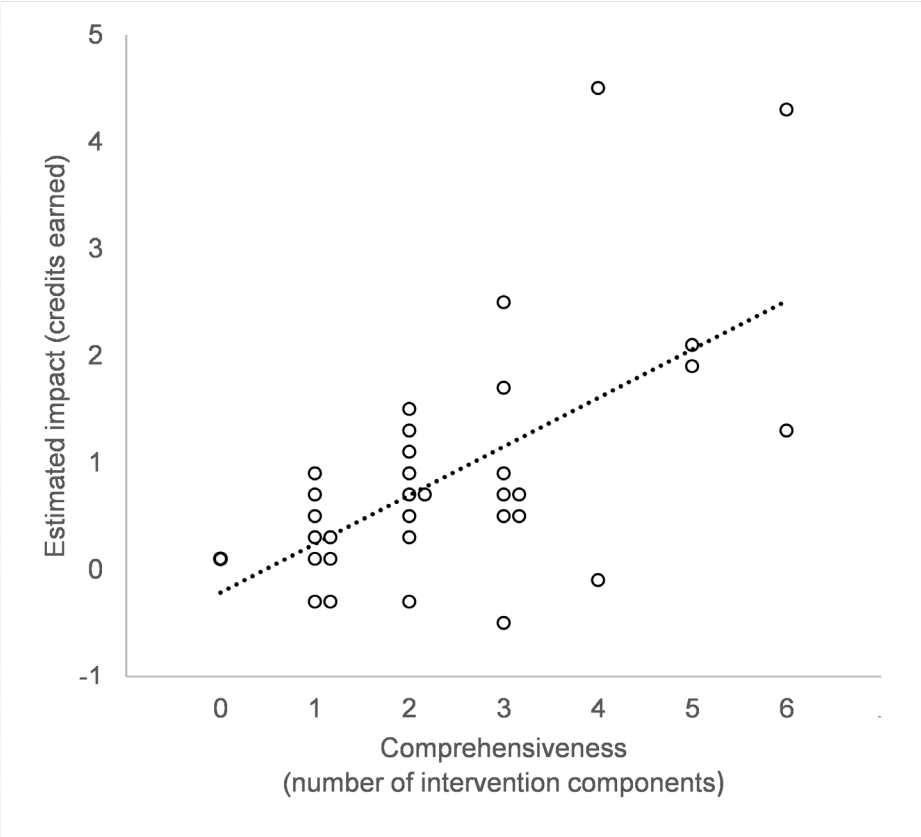
More Comprehensive Programs Have Larger Impacts

Figure 1 illustrates the positive relationship between intervention impacts and comprehensiveness. The x-axis of this figure represents the number of intervention components (for example, an intervention with financial support and enhanced tutoring has two components). The y-axis in the figure represents the estimated impact of the intervention on credit accumulation one year after students joined their intervention studies.

Now consider the pattern of findings in the figure. It indicates that as the number of intervention components goes from zero to six, the average intervention impact increases by 2.73 credits. Stated differently, the intervention impact on credits accumulated increases by 0.46 credits, on average, for each additional intervention component.

FIGURE 1

INTERVENTION IMPACTS ON CREDITS EARNED VERSUS THEIR COMPREHENSIVENESS (YEAR 1)



SOURCE: SOURCE: MDRC calculations based on reports and journal articles. Links to reports and articles can be found in THE-RCT documentation.

NOTE: *How to Read this Figure*. In Figure 1, each data point represents an intervention. For example, the point on the top right of the figure indicates that an intervention (this one is CUNY ASAP) had six intervention components and the estimated effect on credits earned through one year after students joined the study was 4.3 credits.

This result aligns well with current thinking in the field, where comprehensive support services are viewed to be highly effective.[13] This result also has intuitive appeal. Many community college students face multiple impediments to success, each of which may require a different intervention component. For example, navigating the complex bureaucracy of college may stifle one student; attending to the full cost of college may hold back another student; and learning the material required to pass courses may prevent another student from progressing in college. For many students, there is no single financial, academic, system-level, or personal barrier that, if addressed, would lead to college success. Rather, there are multiple barriers. Thus, interventions with complementary components that address multiple barriers seem, on their face, to be more promising than interventions that address only one or two barriers.

So interventions with more components tend to have larger impacts, but which components are effective? This question is explored by examining the relationship between the intensity of each intervention component and the magnitude of an intervention's impacts.

Interventions that Promote Full-Time and Summer Enrollment Have Larger-than-Average Impacts

Figure 2 illustrates the strong, positive relationship between intervention impacts and the number of terms an intervention promotes full-time or summer enrollment during the first year after students entered their programs. The findings are striking. Moving from an intervention that does not explicitly promote full-time or summer enrollment to an intervention that promotes full-time fall and spring enrollment plus summer enrollment (that is, enrollment for three terms) is associated with a 2.53 credit increase in the average size of an intervention's impacts.

Researchers have found that students who enroll full time and in the summer after the first year in college are more likely than others to earn degrees.[14] Yet it is easy to imagine how promoting full-time enrollment might backfire for some students. For example, if students are induced to enroll full time, their increased time commitment could result in poor performance across their entire course load. But in fact, the present analyses find that interventions that promote full-time or summer enrollment tend to have larger impacts than those that do not.

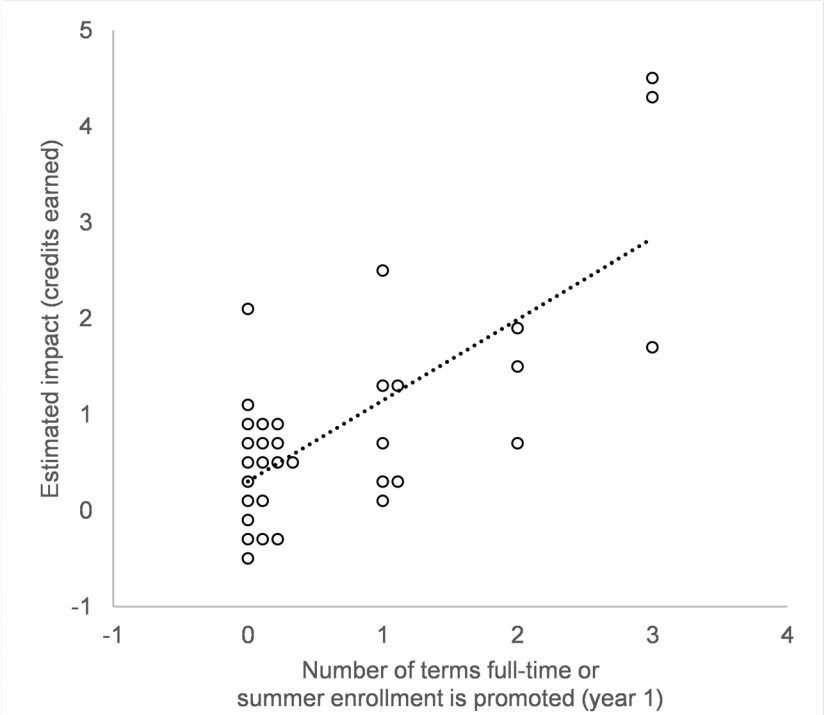
Across the interventions studied, the promotion of full-time or summer enrollment came in different forms, including:

- Strictly required full-time enrollment, where if students drop to part-time enrollment, they lose out on the intervention that semester
- Nominally required full-time enrollment, but with no real penalties for dropping to part-time status
- Financial incentives for full-time enrollment (in fall or spring) or summer enrollment
- Student informational campaigns promoting full-time or summer enrollment

For example, Detroit Promise Path staff members communicate the value of full-time and summer enrollment to students, and coaches direct students to enroll full time (12 or more credits) in fall and spring. However, if students drop to part-time status for a semester, there is no penalty; students continue to receive coaching and financial incentives. As another example, the Ohio Performance-Based Scholarship intervention (PBS-Ohio) offered students from low-income households a $900 award for achieving a "C" grade or better in 12 or more credits during each semester, providing an incentive for full-time enrollment. The Encouraging Additional Summer Enrollment intervention included a student informational campaign (with messages sent by email and postal mail) that promoted summer enrollment among program group members, all of whom were Pell Grant recipients. Finally, CUNY ASAP requires full-time enrollment for program participants; students are not eligible for the program's financial support in semesters they enroll part time.

FIGURE 2

INTERVENTION IMPACTS ON CREDITS EARNED VERSUS THEIR PROMOTION OF FULL-TIME OR SUMMER ENROLLMENT (YEAR 1)



SOURCE: MDRC calculations based on reports and journal articles. Links to reports and articles can be found in THE-RCT documentation.

NOTE: *How to Read this Figure.* In Figure 2, each data point represents an intervention. For example, the point on the top right of the figure indicates that an intervention (this one is the Ohio ASAP) promoted full-time enrollment in fall and spring and summer enrollment (a total of three terms) and the estimated effect on credits earned through one year after students joined the study was 4.5 credits.

But what about part-time students? The research samples in some of these studies (for example, those of CUNY ASAP and PBS-Ohio) were restricted to students who said they would enroll full time if offered the intervention. In these cases, the interventions caused some students who would have enrolled part time without the intervention to enroll full time because of the intervention. Part of what these interventions do is convert would-be-part-timers into full-timers.

Yet strictly requiring full-time enrollment will limit who participates in an intervention: Many students will opt out of the intervention because they cannot commit to consistent full-time status. Fortunately, nominal requirements, financial incentives, and strong informational campaigns can be used more broadly to promote full-time and summer enrollment without excluding part-time students. Differences in the effectiveness of these various approaches to promoting full-time or summer enrollment is an area ripe for future research.

Advising, Tutoring, and Financial Support Are Promising

Increasing students' use of advising is associated with larger intervention impacts. However, this relationship is no longer present when ASAP is excluded from the analyses. ASAP is an outlier in terms of the size of its impacts and the intensity of its advising. Strikingly, in their first program year, students in CUNY ASAP and a replication of ASAP in Ohio reported speaking to an adviser 32 and 19 more times, respectively, than their control group counterparts. These service contrasts (that is, the difference between services experienced in the program and control groups) are more than three times larger than those produced by the next most intensive advising intervention.[15] To fill in the picture of the impact of more advising on students' academic progress, more research is needed on the impact of advising that is less intensive than ASAP's advising, but more intensive than the advising provided by the other interventions in THE-RCT.

Similarly, forms of support that increase students' use of tutoring are associated with larger intervention impacts, but the relationship again disappears with the omission of ASAP. Unfortunately, data on the amount and content of tutoring students received in THE-RCT's interventions are quite limited. That said, given the evidence from pre-K-12 research on the positive impacts of tutoring,[16] the direct value of tutoring is another area ripe for further investigation in community colleges.

Finally, increased financial support is associated with larger intervention impacts. But perhaps the most surprising finding from the present analysis is that, after controlling for the intensity of the other intervention components, there is no relationship between increased financial support and increased intervention impacts. In other words, the association between increased financial support and larger intervention impacts may be an artifact of those interventions with greater financial support also offering other effective intervention features. However, this finding may understate the potential value of the strategic use of financial support. In many multifaceted interventions, financial support works in concert with other program components. For example, dollars are used to attract people to a program that requires full-time enrollment or as an incentive to enroll in summer or attend advising services or tutoring. So increased financial support may be an essential element of effective interventions.

CONCLUSION

With the help of standardized student-level data from THE-RCT's restricted-access database, the present research synthesis offers insights into how best to improve the academic outcomes of community college students. Importantly, the present analyses are intended to generate hypotheses (that is, they are exploratory) rather than to test them (that is, they are not confirmatory). This research provides suggestive evidence for decision makers, and it is to be hoped that the findings can be used for the creation and testing of new interventions.

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