

Contextualized College Transition Strategies for Adult Basic Skills Students: Learning from Washington State's I-BEST Program Model

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The Community College Research Center (CCRC), Teachers College, Columbia University, is the leading independent authority on the nation's 1,200 two-year colleges. CCRC's mission is to conduct research on the major issues affecting community colleges in the United States and to contribute to the development of practice and policy that expands access to higher education and promotes success for all students.

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Executive Summary

Integrated Basic Education and Skills Training (I-BEST) integrates the teaching of basic skills and technical content in order to accelerate basic skills students' transition into and through a college-level occupational field of study. This innovative program model was developed by the Washington State Board for Community and Technical Colleges (SBCTC) in collaboration with the community and technical colleges in the state. At the time of our study, all 34 community and technical colleges in Washington State offered I-BEST programming in at least one workforce area, and there were approximately 150 approved I-BEST programs across the state.

The study reported on here represents the final phase of a multi-year evaluation of the I-BEST model that began in 2009, conducted by CCRC in collaboration with the Washington SBCTC. Based on fieldwork undertaken in spring 2011 on 16 I-BEST programs at eight colleges, this report builds on CCRC's earlier qualitative and quantitative research by seeking to understand those aspects of I-BEST that best support student learning, progression, and completion. In addition, the report considers the I-BEST student experience and evaluates the costs of I-BEST program delivery. The findings and recommendations highlighted below may be useful for funders, policymakers, and practitioners in other states who are considering transition interventions similar to the I-BEST model.

Key Findings

Program structure. I-BEST programs appear to be highly structured, limiting complex decisions students must make about program and course selection and offering support services and assistance in securing financial aid. However, the programs vary in effectiveness in enabling students to advance to higher level training

and credentials. Program leaders and administrators we interviewed often noted the importance of program pathways *after I-BEST completion* that incorporate functional transitions and adequate student supports.

Instruction. A basic skills instructor and a professional-technical instructor jointly teach I-BEST courses, yet the programs vary in the degree of integrated instruction and team teaching. They also employ contextualized basic skills instruction, particularly in support courses and learning labs. We found that I-BEST programs exhibited a combination of integrated instruction and contextualized basic skills instruction, which suggests that a high amount of integration may be less essential to the instructional approach than providing this combination of the two forms of instruction.

The student experience. Students responded positively to the structural components of the program design and to the instructional approach. I-BEST students expressed increased confidence and ability to succeed in college-level courses, and many were eager to continue on to additional credentials at the colleges.

Sustainability, scale, and cost. One of the major challenges for the colleges in Washington is the sustainability of I-BEST programs amid competing priorities, fluctuations in program enrollments, faculty and administrator turnover, and sharp cuts in state funding. Estimated I-BEST program costs vary widely and depend on several factors, including field of study, number of students served, and costs for instruction and support services. While it appears that I-BEST programs cost more, on average, than the total average cost for equivalent regular credits, we also determined that the benefits of I-BEST programs approximately equal the additional costs incurred by providing the programs.

Recommendations

Transitions. Programs that are designed to increase the rate at which adult basic skills students transition into and through college-level programs need to consider all of the possible transition points and identify barriers to a successful transition to further education. Furthermore, programs where such barriers exist need to implement changes to both policy and practice to create clearly defined, viable pathways that directly connect completers to their next step.

Readiness criteria. As part of the process of assessing pathways and transition points, it is necessary to consider the readiness of students who complete the intervention. Program planners should consider the level of academic rigor and preparation that the program pathway requires. They should also consult with faculty who are teaching the “next step” courses to ensure that I-BEST program completers have gained the skills and knowledge needed to be ready for post-intervention, college-level coursework.

Integration and contextualization. Interventions for low-skilled students should place greater emphasis on incorporating both integrated instruction and contextualized basic skills instruction than on team teaching per se. This will not only help ensure strong instruction but will add flexibility to program delivery.

Flexibility. The I-BEST model in Washington State requires that a professional–technical instructor and a basic skills instructor are present in the classroom together at least 50 percent of the time. Some instructors we interviewed stated that more overlap was needed; others wanted more flexibility in the required amount and felt that the 50 percent overlap may be more useful as a guideline or starting point. Transition interventions that include integration or contextualization need to consider how much overlap in

instructional time is needed, and this will depend on the field of study and the resources of the institution.

Planning time. Program leaders and instructors teaching in I-BEST stated that planning was a critical but often overlooked component of the model. Given that integrated transition interventions like I-BEST can be challenging to implement, it is important to incorporate adequate planning time for instructors. For interventions with more flexible approaches to instruction, in which instructors may not be spending as much time together in the classroom, joint planning is likely to be even more important.

State- or system-level support. Even if colleges in other states develop less costly transition programs by selectively adapting I-BEST design principles, they are likely to need financial incentives to offer such programs since the cost of established basic skills programs are so low. In Washington State, the I-BEST model has received strong support from the SBCTC. Other transition interventions would likely benefit from similarly strong system-level support through targeted policies and funding. Colleges in Washington have nonetheless been constrained in their capacity to expand I-BEST to broader numbers of students because of cuts in state funding and challenges in recruiting students. In deciding how far to expand enrollment in I-BEST and I-BEST-like programs, colleges in and outside of Washington State will likely have to decide whether they want to sacrifice larger enrollments and serve smaller numbers of students for better outcomes.

1. Introduction

Increasing postsecondary credential attainment is critically important for supporting the nation's economic growth and global competitiveness. To address this issue, the federal government established an ambitious national completion goal for higher education in which two-year institutions in particular are asked to play a vital role. In 2010, President Obama called for community colleges to produce an additional five million degrees and certificates by 2020 (The White House, Office of the Press Secretary, 2010). A growing number of private funders, higher education institutions, and state legislatures have joined the federal government in this college completion agenda. Lumina Foundation for Education, for example, set a goal that calls for an ambitious 60 percent higher education attainment rate in the United States by 2025. The current expected rate of growth for degree attainment by 2025, however, falls far short of this 60 percent goal (Lumina Foundation for Education, 2012).

In order to realize substantial improvements in completion beyond current projections, it will be necessary to reach large numbers of underserved students, including adult basic education and English as a Second Language (ESL) students, many of whom do not progress from basic skills coursework to college-level programs. In the 2007–2008 academic year, more than 2.3 million students were enrolled in federally funded adult basic skills programs. While the percentage of basic skills students who indicate an intent to transition to postsecondary education and achieve this goal has been steadily increasing in recent years, the number of students who set this goal and make the transition remains a very small proportion (about 2 percent) of the total basic skills population (U.S. Department of Education, 2010). There is a nationwide interest in identifying successful interventions for transitioning more students from basic skills to college-level programs of study. One such initiative that has garnered significant attention is Washington State's Integrated Basic Education and Skills Training (I-BEST) program model.¹

I-BEST is an approach that integrates the teaching of basic skills and technical content in order to accelerate basic skills students' transition into and through a college-level occupational field of study. The model was developed by the Washington State Board of Community and Technical Colleges (SBCTC) in collaboration with the community and technical colleges in the state. I-BEST was developed because the Washington community and technical college system recognized that the rate at which basic skills students transitioned to college was extremely low (Prince & Jenkins, 2005). An I-BEST program is an integrated set of courses in a career–technical education (CTE) field that is jointly taught by a CTE instructor and a basic skills instructor. These courses often include support classes or labs where students can receive supplemental instruction. Students in an I-BEST program earn college-level credit for their CTE courses. I-BEST programs, which vary in length, are required to be part of a “career pathway,” that is, a certificate or associate degree program designed to lead to further education and to employment in occupations that are in demand. At the time of our study, all 34 community and technical colleges in Washington State offered I-BEST programming in at least one workforce area, and there were approximately 150 approved I-BEST programs across the state.²

The study reported on here is the final phase of a multi-year evaluation of the I-BEST model, funded by the Bill & Melinda Gates Foundation. CCRC began this evaluation in 2009 in collaboration with the Washington State Board of Community and Technical Colleges. CCRC conducted two strands of research to answer the following general research questions: (a) How does the I-BEST program model work? and (b) is it cost-effective? Researchers sought to answer the former question by analyzing program applications and conducting interviews with program leaders, staff, and faculty at all 34 colleges in the state. The analysis was designed to offer a comprehensive look at the processes involved in introducing and operating I-BEST across the colleges. Some of the key findings included the variability of the delivered programs in terms of length, intensity, support for students, and credential earned; substantial variation in the extent to which basic

¹ Initiatives such as Accelerating Opportunity, the RISE partnership in Wisconsin, and the Oregon Pathways for Adult Basic Skills are other examples of contextualized transition programs for basic skills students. Some of these other initiatives are modeled, at least in part, on I-BEST.

² The number of approved programs is not the same as the number of programs offered at the colleges. Approved programs are those that have been through the application and review process and that have been approved for funding by the SBCTC. However, the actual number of I-BEST programs running at any college may vary by term, depending on factors such as student interest, funding, and faculty staffing.

skills instruction was integrated with the teaching of technical content; and the importance of the co-instructor relationship (see Wachen, Jenkins, & Van Noy, 2011).

The effectiveness of the model was addressed by examining the impact of I-BEST on basic skills students enrolled in the 2005–2006 through 2007–2008 academic years. Using both multivariate regressions and propensity score matching, a group of CCRC researchers found that enrollment in the program had positive impacts on earning college credit, the number of college credits earned, the number of occupational college credits earned, earning a certificate or degree, and achieving point gains on basic skills exams. The researchers also employed a difference-in-differences strategy to measure causal effects of the intention to treat students with I-BEST programs and found support for a causal relationship between I-BEST and positive student outcomes (Zeidenberg, Cho, & Jenkins, 2010).

CCRC's earlier qualitative and quantitative research on the I-BEST model raised additional questions about the model that warranted more in-depth analysis. That earlier work also led to further questions about implementation from practitioners and funders who were interested in developing similar interventions for low-skilled students. This report presents our findings on these questions based on further research and data analysis. Specifically, this report addresses the following research questions:

- What features of I-BEST programs (and the educational pathways that they are part of) seem to support student progression and completion?
- Given that the instructional component of I-BEST varies across the colleges in the amount of integrated team teaching, what approaches to instruction appear to promote student learning?
- How do students experience I-BEST? What do they perceive to be the benefits and challenges of the program?
- What costs are associated with delivering I-BEST programs? Do the benefits of the program exceed the costs?

The report is organized as follows: The next section describes the research methods for the study. Sections 3 and 4 explore program design, structure, instruction, and the student experience. Section 5 presents findings from a cost analysis of I-BEST. The concluding section discusses the findings of the study and considers the applicability of the model to other transition interventions.

2. Research Methods

This section describes the process for selecting the I-BEST programs included in our study and the methods used to develop hypotheses about the importance of components of the program model at the eight colleges included in the study. The research methods were consistent across the sites.

2.1 College and Program Selection

We selected 16 I-BEST programs at eight colleges in the Washington community and technical college system for our spring 2011 fieldwork. The goal of this selection process was to identify at least two programs in each of several fields of study and, where possible, to select relatively higher performing programs to inform the development of hypotheses about effective I-BEST practices. Since the sample size for many of the programs was very small, it was not possible to use multivariate analyses to identify more or less effective programs. Instead, we selected programs by examining their descriptive statistics on student outcomes. Where possible, we were interested in selecting sites with (a) multiple programs that appear to vary in degree of effectiveness based on their student outcomes and (b) programs in a range of fields of study across the selected sites. We followed the selection process summarized below.

We examined SBCTC data on students by I-BEST program, including the number of students in the program, award completion rates by type (certificates of less than a year, certificates of a year or more, and associate degrees), persistence rates, and average credits earned over two years. Specifically, we focused on cohorts of first-time students in three academic years: 2006–2007 through 2008–2009. We identified programs by examining the CIP code associated with the first I-BEST course students took

in order to create a list of I-BEST programs by college. We identified 143 programs at 33 colleges by using two-digit CIP codes (one community college in the state did not have data for I-BEST students). We then used the following selection criteria to further select programs.

First, we focused on colleges with at least two programs with 20 or more students. We chose not to focus on smaller programs since it is possible that such programs were either newly implemented programs or may have had difficulty recruiting students. We focused on colleges with at least two programs so that we could examine variation in program implementation and effectiveness within colleges as well as across colleges. We also sought to take advantage of efficiencies in data collection by including colleges with multiple programs. We eliminated five colleges that had no programs with more than 20 students and 14 colleges with only one program with more than 20 students. After applying these exclusion criteria, we had 36 programs at 14 colleges remaining from our initial list.

Second, we sought to avoid conducting fieldwork at colleges in Washington State that were already participating in other research projects with CCRC as well as those sites where CCRC had conducted I-BEST fieldwork in 2009. We eliminated three additional colleges through this process, leaving us with 29 programs at 11 colleges from which to select.

We compared this list of programs with the list of I-BEST programs identified through the SBCTC program applications in order to verify that we had correctly identified an actual program at the college by the CIP code. In some instances, the two-digit CIP code identified multiple programs as identified in the I-BEST program applications. In these cases, we used four-digit and, when necessary, six-digit CIP codes to identify the specific programs that corresponded to the program applications.

We examined student outcomes to attempt to identify relatively higher performing programs. We considered programs as higher performing when they had relatively

higher percentages of students earning long-term certificates (that is, certificates of a year or more) within two years compared with other programs within the same field of study; we also considered the performance of programs by the relative percentage of students who earned short-term certificates within two years as a secondary outcome of interest, when a short-term certificate was a stated goal in the program application.³ However, it proved difficult to identify higher performing programs through this process for at least two reasons. First, there were small numbers of students in many of the programs during the years for which we have data. Second, there was substantial variation in program design across the colleges. I-BEST program start dates, length, and number of credits all varied widely and made comparing student outcomes difficult (see Table 2). While we were not able to identify higher performing programs with much precision, we used the rough estimates we obtained to guide our analysis.

Table 1 (p. 8) includes the final list of programs and colleges selected for the fieldwork. The programs in our final selection of eight colleges were concentrated in five fields of study: Education and Child Care, Welding, Health Professions-Nursing Assistant, Health Professions-Administration, and Business. The 16 programs ranged from 1 to 4 quarters in length and averaged about 22 college credits (see Table 2, p. 9).

2.2 Fieldwork

In contrast to CCRC's earlier qualitative study of I-BEST (in which information was gathered about all I-BEST programs across the state), this study focused on a subset of colleges and program areas for more in-depth research on key elements of the model. We obtained the data for this study by conducting comprehensive site visits at the eight selected colleges. Each two-day site visit was conducted in April and May of 2011. We interviewed a total of 77 individuals, including I-BEST program administrators, the deans of workforce education and basic skills education, senior leaders (presidents, vice presidents), and I-BEST instructors. Most interviews were conducted with individual respondents,

³ We used long-term certificates as our primary outcome for selection because the I-BEST model was developed to transition low-skilled students into and through college-level programs. Research on the transition rates and labor market outcomes of adult basic education and ESL students in Washington State found that short-term training does not help individuals advance beyond low-paying jobs, whereas a year or more of college-level credits provides a substantial increase in earnings (Prince & Jenkins, 2005; Dadgar & Weiss, 2012). According to the WA SBCTC website, I-BEST was developed in response to Prince and Jenkins's findings and aimed to help students "successfully complete integrated programs and find family-wage careers."

Table 1
Selected Colleges and Programs for Spring 2011 Fieldwork

College	Education and Child Care (4)	Welding (3)	Nursing Assistant (4)	Health Care-Admin (2)	Business (3)
WA-1		•		•	
WA-2	•			•	
WA-3			•		•
WA-4	•				•
WA-5		•	•		
WA-6		•			•
WA-7	•		•		
WA-8	•		•		

although in a few cases group interviews were conducted.⁴ We also interviewed groups of I-BEST students at each college. Interviews typically lasted one hour in length. When feasible, we also observed I-BEST classes during the two-day visits. Using a classroom observation guide, we identified instances of contextualization and support services and commented on interactions and communications between instructors and students and between the two instructors.

We also sought to identify elements of the I-BEST program model that appeared to be critical and that could be applied more broadly to transition interventions in other settings and for larger groups of underprepared students. Prior to our fieldwork, we developed research questions based on CCRC’s earlier qualitative and quantitative research on the I-BEST model. We used these questions in designing interview protocols for the fieldwork.

In the next sections of this paper, we identify and discuss patterns across the programs in our study related to features of program design, contextualized instruction, and the student experience. We also discuss findings from a cost analysis of the model.

3. Features of I-BEST Program Design

We sought to determine what aspects of I-BEST program design seem to support student progression and completion. We say “seem to support” because the analytic methods we used in this study do not allow for precise measures of performance, let alone for causal inferences about the effects of program components or programs overall. We also sought to better understand the educational pathways that I-BEST programs are part of and to determine the extent to which these pathways support student transition to higher level career education.

3.1 I-BEST Program Structure

All community college students undergo a complex decision-making process when matriculating. This process includes choosing a program of study and choosing courses that fulfill the requirements for the program.⁵

⁴ We used long-term certificates as our primary outcome for selection because the I-BEST model was developed to transition low-skilled students into and through college-level programs. Research on the transition rates and labor market outcomes of adult basic education and ESL students in Washington State found that short-term training does not help individuals advance beyond low-paying jobs, whereas a year or more of college-level credits provides a substantial increase in earnings (Prince & Jenkins, 2005; Dadgar & Weiss, 2012). According to the WA SBCTC website, I-BEST was developed in response to Prince and Jenkins’s findings and aimed to help students “successfully complete integrated programs and find family-wage careers.”

⁵ For additional discussion of the complexity of navigating college, see Scott-Clayton (2011).

Table 2
Selected I-BEST Programs, Length of Program and Credits Earned

Field of Study	College	College Credits	Program Length (Quarters)
Welding	WA-6	45	3
	WA-5	16	2
	WA-1	15	2
Nursing Assistant	WA-7	15	2
	WA-5	13	2
	WA-3	12	1
	WA-8	8	1
Business	WA-6	45	3
	WA-4	34	4
	WA-3	15	1
Education and Child Care	WA-4	27	2
	WA-7	15	2
	WA-8	15	3
	WA-2	12	3
Health Care Administration	WA-1	52	3
	WA-2	18	2
	Max	52	4
	Min	8	1
	Mean	22.3	2.3

Program on-ramps. I-BEST provides an on-ramp to a career technical education program, customized for basic skills students. To be approved for funding by the state, I-BEST programs must be structured to provide a clear pathway to credentials and career advancement. As such, these programs may make it easier for basic skills students to choose and navigate a program of study.

Course selection. In addition to having to choose a program of study, students must decide which courses to enroll in, a process that occurs term after term throughout a student’s career in college. In many I-BEST programs, this process is mostly, if not entirely, eliminated. The required courses for the program are established by the department, and the schedule of courses is laid out for students term by term. Some programs provide students with the option

to take additional, non-I-BEST courses, such as program electives or general education courses, but the courses required for successful completion of I-BEST programs are established in advance. Students generally responded positively to having limited choices for courses. For example, a student stated, “It is less confusing for us and less confusing for our instructors too. They can advise everyone the same way.”

Cohort models. Another component of program structure is whether or not students go through a program as a cohort, that is, take the same set of courses and progress through the program together. Students proceeded through I-BEST programs as a cohort in all but two programs in our study, another indication that the structure provided by the I-BEST model is strong. Interestingly, the two programs that did not

implement a cohort model were relatively lower performing programs (based on our admittedly rough performance assessment), and at least one instructor indicated that this may have affected student performance, stating, “Those not in a cohort struggle with classes and with the sequence. There’s a desire to strengthen the cohort model.” At one college that did use a cohort model for I-BEST programs, an administrator noted that this was easier to implement logistically, stating, “Everybody starts at once and it is really easy to do the assessments at the beginning. It works more effectively when it is a cohort. It has been easier to implement.”

Support services. In most of the programs we examined, I-BEST students receive support services beyond what is normally offered to students at the college. This extra support is offered both at the point of entry into the programs and throughout the I-BEST sequence of courses. Financial aid assistance is a critical component of the support services provided through I-BEST programs, as almost 60 percent of I-BEST students are in the bottom two quintiles of socioeconomic status. Also, basic skills students, who pay only a nominal fee for basic skills courses each term, need to adjust to paying tuition for college-level courses (Wachen et al., 2011). Washington State’s Opportunity Grant program, which provides financial and case management support to low-income students in career programs, was designed specifically to assist students in I-BEST programs and other career–technical pathways.⁶ Students also receive extra support from I-BEST instructors during I-BEST support courses, which are offered in addition to the courses that integrate basic skills and technical content and provide students with supplemental instruction and help with study skills.

3.2 Post-Intervention Structure and Support

The previous sections emphasized the degree of structure provided to students throughout an I-BEST sequence of courses. However, many I-BEST programs are only one or two quarters in length, meaning that the highly structured intervention is relatively short. Because I-BEST programs are designed to help basic skills students reach the “tipping point” of at least a year’s worth of college credits and an occupational credential, it is also necessary to

consider the next steps toward completion for students who finish I-BEST courses.

We identified two major issues related to the experiences of I-BEST program completers that are important to consider when designing I-BEST-like interventions. First, we found significant variation in how programs handled the transition to further coursework at the end of the I-BEST course sequence. Several of the colleges were operating I-BEST programs that lacked a direct, viable transition to additional program-specific coursework leading to a credential in the field of study. College respondents indicated that this resulted from either a lack of adequate academic preparation among I-BEST students or logistical barriers that prevented a smooth transition or both. In general, programs we identified as high-performing (again based on rough comparisons using descriptive statistics on program performance) adequately addressed this transition while lower performing programs struggled to do so.

Second, and related to the first issue, we found that some I-BEST programs were providing a high level of support to students that ended abruptly at the conclusion of the I-BEST course sequence. Students who completed the I-BEST sequence of courses were then “mainstreamed” into the general student population and no longer received any of the additional academic and social supports they had received when enrolled in I-BEST. This could be problematic because while some students may be ready to negotiate college-level programs without any additional supports, others are likely to need some level of assistance as they transition. Some of the specific challenges that students may face when transitioning from I-BEST to regular college-level courses are adjusting to a different pace of instruction, working with only one instructor instead of two, and no longer benefitting from support courses. As one early childhood education instructor noted,

Once students are out of the program, transitioning to regular classes will be very difficult for them. Some students don’t do well with the transition because they still need to learn workplace skills and continue to improve language proficiency. The college needs to develop bridge programs that provide additional support.

⁶ See Wachen et al. (2011) for more information about financial aid and Opportunity Grants.

These two issues of post-intervention structure are addressed in further detail in the subsequent sections.

Lack of direct, functional transition. Ideally, I-BEST prepares students to continue on an educational pathway, leading to longer-term certificates or degrees. In a strong pathway, a student who completes I-BEST courses will either have the necessary skills to continue in a certificate or associate degree program or will have an opportunity to enroll in a type of bridge program or series of courses that will provide a next step toward entering a longer-term program. However, several of the programs we studied identified academic deficiencies as a serious barrier to advancement for I-BEST students. A dean of basic skills at one college expressed this concern, stating,

The college isn't doing students a service when they leave I-BEST and we tell them they can go on to get a two-year degree, but they don't have the skills to pass English 101 in order to get the degree.

One of the colleges with an I-BEST program that prepared students to earn a short-term Nursing Assistant certificate (NAC) had the explicit goal of retaining students at the college beyond the I-BEST sequence of courses. College administrators and program staff repeatedly emphasized this goal for I-BEST throughout our interviews, and the program instituted mandatory COMPASS placement testing at the end of the program to further facilitate the transition. In addition, the instructional component appeared to be strong, and the program students we interviewed were motivated to continue studies in nursing beyond the NAC credential. Several students stated that they wanted to become registered nurses, and one student wanted to pursue a Master of Science in Nursing and teach nursing.

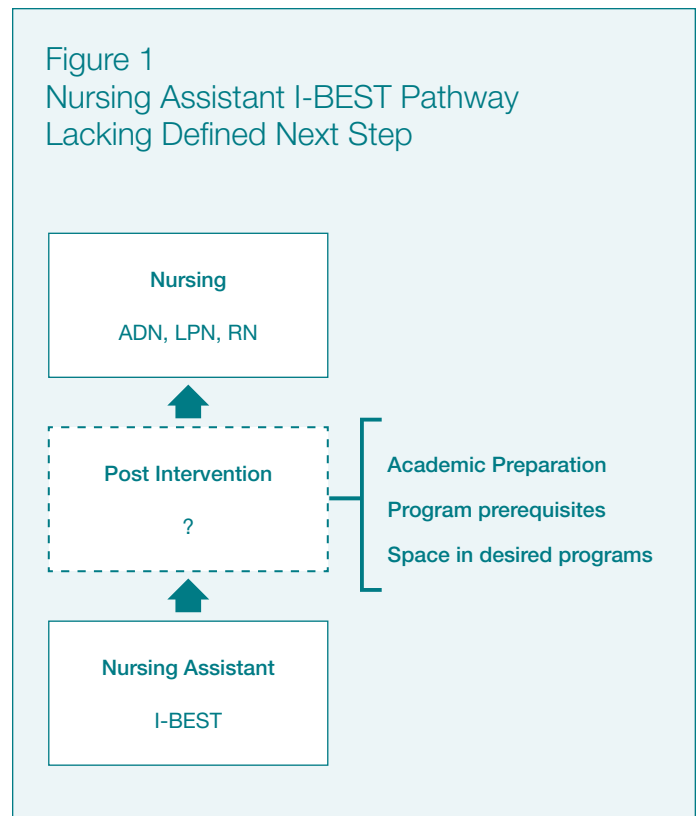
However, program staff noted that there was a big gap between the NAC program and the nursing program, both in terms of program prerequisites and in terms of students' skill level (see Figure 1). According to one administrator involved in the program:

After they complete the NAC, they begin the process of doing their nursing prerequisites. They have to resolve their developmental education issues in English and math, and then they have to start their science prerequisites. There is a very large gap between the NAC program and entering the nursing program. One of the criticisms from the nursing department was that this is not really a pathway because there is too much of a gap.

As a result, despite the clear goal of preparing students to advance to long-term certificate or associate degree programs, in this case I-BEST students were struggling to advance beyond training for more basic certificates.

This highlights an important aspect of transition intervention design: it is not sufficient to simply define a pathway on paper and put students on that pathway. It is first necessary to assess the strength of the pathway to determine whether students completing each step are academically ready to proceed to the next step. For I-BEST, completers should be ready to transition directly into coursework that builds

Figure 1
Nursing Assistant I-BEST Pathway
Lacking Defined Next Step



on the I-BEST portion of the program of study. However, in the NAC program described above, the pathway to nursing was not a readily achievable option for many students.

In contrast, a program at another college was better designed to allow for a smooth transition from NAC programs to programs leading to longer-term certificates and degrees. This program combined several different stages of instruction and skill development and decreasing levels of support over three years.

- Year 1: Students start with an intensive, one-week pre-I-BEST introduction to a health careers course. Students then enroll in 3 quarters (1 year) of I-BEST programming in foundational courses for health careers, followed by an optional NAC I-BEST quarter.
- Year 2: Students enroll in an I-BEST-like program (with some additional supports but not at the level provided in I-BEST) to help them progress through any needed developmental education courses and prerequisites for nursing.
- Year 3: Students enroll in the nursing program.

In this type of program design, the college has established a series of steps to increase the likelihood that students are academically prepared for the next stage. This flexible model also places students on a path in a general field of study rather than in one specific program, which allows students in the I-BEST sequence to choose among several different subfields within health care. The model also has the benefit of allowing program staff to recruit more students into an initial I-BEST program that is flexible enough to accommodate students who have yet to settle on a specific program of study within the field.

Loss of momentum. Even when I-BEST programs succeed in preparing students academically for further coursework, logistical issues can be a barrier to a smooth transition. In particular, program leaders identified program start dates and enrollments as a major issue that hamper movement along student pathways. As one administrator noted, “Programs are already full in the fall quarter, so we had to rely on attrition—people dropping out in the first quarter—to let I-BEST students in by winter.” At a college with a one-

quarter I-BEST program where this problem was identified, program staff redesigned the I-BEST sequence into a two-quarter program and restructured the pathway (see box on p. 13 for more information). I-BEST programs and pathways need to be carefully designed and scheduled so as to eliminate barriers to continuing on in programs of study.

Easing the transition. From our interviews, program staff identified several practices for facilitating the transition from I-BEST contextualized instruction to regular college-level coursework.

- *Establish an intermediate step or bridge semester along the pathway.* This intermediate step may offer academic and student supports that are less intensive than the intervention but are more concentrated than regular college programming.
- *Continue the intervention (or additional supports) through a longer portion of the college-level program.* One welding program included I-BEST support for the entire yearlong certificate. This program had the highest percentage of students earning long-term certificates among the three welding programs in our study.
- *Develop a centralized location for supporting transitions.* One college with several higher performing programs had established a center that focuses on supporting student transitions at the college. According to program leaders, this center was heavily involved in supporting I-BEST students. The transition center also prepares students to access services on their own. According to one administrator, “The center allows students to have the experience of accessing services like other students, because they’ll have to do this when they leave I-BEST.”
- *Provide multiple pathways for students.* Giving students options once they enroll in the intervention may facilitate recruitment and retention. One college developed a Health Careers Foundation I-BEST program that included core courses in health care that were applicable to several different programs of study in allied health, including phlebotomy, nursing assistant, radiology, and dental assisting.

Redesigning an I-BEST Program for Student Progression

One of the I-BEST welding programs in our study had previously been implemented as a one-quarter program that was offered in the fall term with completers transitioning into the regular program at the end of the quarter. Program staff and instructors identified two problems that prevented students from continuing on their pathways. First, many I-BEST students were not academically prepared to continue in the regular welding program. The regular program moved at a different pace from the I-BEST program and therefore many I-BEST completers needed to perform additional work in both the content area and general education requirements. Second, the I-BEST term did not align well with the longer degree program. The regular welding program enrolled a full cohort of students in the fall term, and I-BEST completers wanting to join the regular program

the following term were only able to do so if regular program students had dropped out and spaces opened up.

In response to these issues, the program and the pathway were redesigned. The I-BEST program was lengthened to two quarters (fall and winter) to provide more comprehensive preparation for students. The pathway was altered to provide two additional quarters (spring and summer) of non-I-BEST coursework with the professional–technical instructor to encourage students to obtain a one-year certificate and to help build their skills to facilitate the transition into the second year of the regular welding program. In the redesigned program, students are able to “get through in two years instead of getting stuck.”

Our findings suggest that well-structured programs and pathways are important for enabling low-skilled students to continue in and complete longer-term certificate and degree programs. College practices and policies that make it difficult to negotiate pathways are likely to limit the ability of low-skilled students to continue in programs of study, even in I-BEST sequences that attempt to provide appropriate academic preparation. In the next section, we consider more carefully the instructional component of I-BEST programs.

4. Contextualization and the Student Experience

For I-BEST programs, the Washington SBCTC requires a basic skills instructor and a professional–technical instructor to jointly teach with at least a 50 percent overlap of instructional time in the classroom. In the model, the basic skills instructor is present in the classroom at least 50 percent of the time and, in some programs, as much as 100 percent of the time. CCRC’s previous report on I-BEST included details on instructional approaches, including faculty selection, team teaching, and levels of integrated instruction (Wachen et al., 2011). The report described four models or levels of integrated instruction:

- Model 1: Non-Integrated Instruction
- Model 2: Non-Integrated Instruction with Separate, Contextualized Basic Skills
- Model 3: Partially Integrated Instruction
- Model 4: Fully Integrated Instruction

In the sections that follow, we explore further the instructional approach of I-BEST and how students experience the delivery of instruction.

4.1 Integrated and Contextualized Basic Skills Instruction

Models of integrated instruction. We gathered data on the instructional approach of I-BEST programs through interviews with faculty and program leaders, focus group interviews with students, and classroom observations. For the classroom observations, we developed a structured observation guide that enabled us to note and comment on instances of integrated or contextualized instruction, team teaching, and student advising. We observed classes in which it was clear that the instruction was very well

integrated (Model 4), and we observed other classes that lacked integration but had separate, contextualized basic skills instruction (Model 2). We did not identify any patterns across the programs in our study that would suggest that the level of integration impacts the effectiveness of the program. This may be because the instructional component of I-BEST varies substantially across the programs and is affected by the co-instructors' relationship, the amount of instructor overlap in the classroom, and other factors. However, in all of the programs in our study, program leaders, faculty, and students indicated that the integrated instructional component of I-BEST was an essential part of the model and was necessary for program effectiveness. In this section, we examine the instructional component of I-BEST and look more closely at the contextualization of instruction.

Comparing integrated and contextualized instruction.

To better understand how instruction in I-BEST works, it is necessary to make a distinction between integrated and contextualized basic skills instruction. According to Perin (2011), "Integrated basic skills instruction is the incorporation of reading, writing, or math instruction into the teaching of content" (p. 8). In contrast, contextualized instruction "involves the teaching of academic skills against a backdrop of specific subject matter to which such skills

need to be applied" (p. 8). This distinction is important to our discussion, as one of the main findings of CCRC's earlier study of I-BEST was that fully integrated instruction was difficult to achieve (Wachen et al., 2011). By stipulating that a professional-technical instructor and a basic skills instructor co-teach classes, the I-BEST program model was designed to emphasize integrated instruction.⁷ Consistent with the findings from CCRC's earlier study, the amount of integration and team teaching varied substantially across the 16 I-BEST programs examined in this study. However, this time, we found many examples of contextualized basic skills instruction, primarily in I-BEST support courses or labs and during time set aside in technical classes to work with students on academic skills. For example, in reference to a welding I-BEST support course, the professional-technical instructor stated: "In the chapter on metallurgy, there are a bunch of graphs. We start teaching graphs to these guys so when we teach the metallurgy chapter, they're already tuned up on it." In addition to the instruction in math, the welding program also included a substantial amount of work on writing and reading comprehension. During the support course, students worked on a writing exercise that asked them to reflect on writing skills in welding, and the instructor presented instances of writing for welders (see Figure 2).

Figure 2
Sample Welding I-BEST Support Class Writing Exercise

Writing Exercise Prompt			
<ul style="list-style-type: none"> • Take 5 minutes to write freely about welding. • What do you like or dislike about welding and WHY? • And why are effective writing skills important as a welder? 			
Important Welder Writing Skills			
Type of Writing	Audience	What is Important	Why?
Resume/cover letter	Employer	Clear and concise	To get a job and make a good first impression
Instructions	Coworkers/employees	Detailed	Understanding and safety
Flyers/ads	Public	Nuts and bolts	Reputation
Reports	Boss/customer	Info/formatting	Accuracy and communication

⁷ One of the program requirements listed in the Washington SBCTC I-BEST application guidelines is, "The expectation for educational delivery is that the mode of instruction incorporates joint ABE/ESL and professional-technical faculty planning and instructing together in the classroom as equal partners, resulting in both literacy and workforce skills gains." See http://www.sbctc.edu/college/_e-ibestapplicationinfo.aspx for more information.

A combination of contextualized basic skills instruction and technical content review was common in I-BEST support courses. For example, a basic skills instructor in a nursing assistant program described her approach to the I-BEST support course,

I do a lot of vocabulary review. Some students have trouble with the English words for body parts. I also preview what is coming up in the nursing lectures. And I do math review that is contextualized to the nursing content.

All of the programs exhibited some combination of integration and contextualization, suggesting that even in programs with only a moderate amount of integrated instruction and team teaching, students may benefit from contextualized basic skills instruction taught in support courses or labs.

This finding suggests that there could be some flexibility in program design. Indeed, program leaders and faculty at five of the colleges in our study stated that they would prefer an instructional model in which the amount of co-teaching and contextualization would be dictated by the specific context of the program rather than by the requirement of a minimum of 50 percent overlap of instructors in the classroom for every program. As the dean of basic skills at one college stated, “Program leaders need to figure out what contextualized, integrated models work at their college. The amount of co-teaching depends on what faculty experience shows is successful—working together, designing the instruction, assessing, being flexible.” Similarly, a business technology instructor stated, “It depends on the nature of the material. In those classes where there is a higher level of comprehension associated with learning the material, the presence [of the second instructor] is critically important.” More flexibility in the approach to instruction may also result in a more sustainable model in terms of instructor availability, program costs, and the needs of the students. Interestingly, program staff at two of the colleges indicated that the model worked best with significantly *more* than the required minimum of 50 percent overlap in the classroom between basic skills and career–technical

instructors, with some programs at these colleges approaching 100 percent.

Both integrated and contextualized instruction require a substantial amount of coordination and planning time. Across programs, instructors and program directors recognized the importance of planning time and professional development opportunities for instructors, particularly in the early stages of program implementation. However, this element of the model was often overlooked or implemented sporadically. As one basic skills instructor noted, “I-BEST is like an arranged marriage with no time to date.” Administrators at several colleges felt that joint planning time for instructors was important enough that it should be one of the requirements of the model, although it is not currently.

I-BEST programs at the local level incorporate a combination of integrated and contextualized basic skills instruction to deliver a rich learning experience to students and begin to prepare them for further postsecondary education. In the next section, we examine how students experience I-BEST programs.

4.2 The Student Experience

The CCRC report on how I-BEST works included descriptive characteristics of I-BEST students and compared I-BEST students with basic skills students who did not participate in I-BEST (Wachen et al., 2011). That earlier report did not, however, include findings on the student experience in the I-BEST classroom. For this phase of the research, we interviewed small groups of students enrolled in the 16 programs in our study to learn about their perceptions of the experience.

Students universally said that the I-BEST model was beneficial, in terms of both the instructional approach and the support provided. Students stated that they benefitted from having two instructors to explain difficult concepts; they were engaged in a high level of individual, hands-on interaction with instructors; and they were more engaged, confident students as a result of the programs (see box on next page).

Selected I-BEST Student Comments on Building Confidence

Students said that their participation in I-BEST courses was good preparation for continuing on to additional college-level coursework. The following are comments from student group interviews.

- “When you haven’t been in school for a while and you are not used to the pace, it does seem like a lot of work. But it definitely prepares us for more college courses.”
- “This got me ready for full-time school.”
- “The program built my confidence in what I can do in the future.”
- “The program gives you the desire to want to do more.”
- “The teachers made it understandable so now I feel like I can handle it, and I’ll probably do well when I continue on to harder things. They built my confidence.”
- “We are capable of doing more than just a GED.”

Students reported that they relied heavily on their I-BEST instructors and I-BEST program advisors for assistance, including questions about financial aid, class scheduling, academic options after I-BEST, and jobs and internships.⁸

I-BEST students also said they benefitted from their relationships with I-BEST instructors and advisors, and these connections provided students with additional support they could call on. For example, one focus group participant stated,

When I called financial aid on my own to set up an appointment, they said it was

going to be a few weeks because they were swamped. [Our I-BEST coordinator] said “I am going to get you in sooner.” She made it her mission to do that for me.

Benefits of contextualization. In addition to accelerating the transition from basic skills courses to college-level programs, the I-BEST model may facilitate more effective instruction and improvements in learning than traditional instruction. Perin (2011) examined cognitive and affective mechanisms that support potential improvements in learning that result from contextualization (under which she includes both contextualized and integrated instruction). The research on cognitive theory suggests that such approaches may improve the transfer of learning to new contexts and increased levels of intrinsic motivation. We examined student focus group interview data to determine whether or not students mentioned these benefits. We also analyzed instructor interview data for additional insights into the benefits of contextualization.

Students reported that the contextualized work on basic math, reading, and writing skills was beneficial because of the connection to the content area instruction. When asked about the type of work done in the support course for a nursing assistant I-BEST program, one student said, “Everything we wrote about [in the support course] was related to nursing. It was a lot easier to understand.” Similarly, a student enrolled in a child development I-BEST program commented, “[The basic skills instructor] makes the assignments so that as we are doing his work, we are also getting practice for doing the content work.” Students perceived that this integration of basic skills instruction into the technical content increased their connection to the material.

I-BEST instructors also recognized this transfer of knowledge as an important element of the instructional model. Some of them said that I-BEST support courses help students to make connections between the basic skills instruction and the technical content. An instructor in an early childhood education program stated, “I think that without this support lab, most students would not be able to comprehend the content and apply it—transfer that knowledge from one place to another.” Similarly, a

⁸ We use the term *I-BEST program advisor* to refer to individuals at the colleges who recruited, advised, and supported I-BEST students. At some colleges, this role was filled by the WorkFirst Coordinator or Coordinator of Transition Services.

basic skills instructor in a welding program noted that the support course “builds up reading, writing, and math skills as they pertain to welding.”

Students said that the presentation of content in different ways made it easier to understand the material. This often involved one instructor delivering timely supplemental instruction for the technical content being delivered by the other instructor. A student in an early childhood education program stated, “When one instructor is lecturing, the other is writing notes on the board. So if the instructor is talking too fast, I can watch what’s happening on the board.” Similarly, a student in an allied health program noted, “[Our basic skills instructor] outlines on the board what our health instructor is saying. She does maps and pictures.” Instructors also perceived that this approach was beneficial for student learning. A professional–technical instructor noted, “When I am dealing with math, my co-instructor is more aware of [students’] individual aptitudes. Students learn in different ways, and he walks in knowing all of that.”

5. Program Sustainability

One of the major challenges for the colleges in Washington is sustaining I-BEST programs amid competing priorities, fluctuations in program enrollments, faculty and administrator turnover, and sharp cuts in state funding. At all of the colleges we studied, administrators and program leaders raised concerns about the sustainability of the model. The Washington SBCTC has sought to mitigate some of these concerns by connecting I-BEST to other statewide funding initiatives, most notably the Student Achievement Initiative, which rewards colleges for improvements in student outcomes in basic skills education among other “achievement points.” Still, whether these efforts are sufficient to sustain I-BEST depends on several factors including the actual costs of the program, whether the benefits of the program outweigh the costs, and the scale at which it can be offered. These issues were raised repeatedly by the administrators we interviewed in our fieldwork in Washington State. They are also of critical interest to practitioners and policymakers in other states who are interested in implementing programs based on the I-BEST model. This section deals with each of these issues in turn.

5.1 Program Costs

Washington State funds I-BEST programs at 1.75 times the normal rate for a full-time equivalent (FTE) student. The additional 0.75 FTE in the funding formula was established to compensate colleges for the additional costs of instruction, support services, and program coordination.⁹ However, CCRC’s earlier research found that the amount of revenue from the funding formula was not likely to be an accurate estimate of the program cost. Administrators at several colleges reported that they had redistributed funds from other sources to help cover the costs of I-BEST programming. Additionally, colleges are not required to allocate all of the 1.75 FTE state funding they receive to I-BEST programs. Therefore, it is unlikely that the actual cost of delivering I-BEST can be met with the amount provided by this funding formula.

Costs data were collected using a survey questionnaire administered to senior college personnel at the eight colleges where we conducted our fieldwork. The questionnaire was designed based on the ingredients approach to collecting costs data (Levin & McEwan, 2000). This approach defines the inputs for operating I-BEST programs and how these might vary compared with traditional basic skills education. The key inputs are instructional services and support services, both of which may vary by program. Because the delivery of I-BEST courses varies across colleges and subjects, the eight colleges in our fieldwork sample were asked to complete the survey for a specific I-BEST program rather than for I-BEST across the entire campus. The colleges could choose any I-BEST program to complete the survey for and were not required to select a program that we studied as part of our fieldwork. The questionnaire used to collect the resources data is provided in the Appendix (p. 27).

Colleges reported hours of time spent and wages paid for management, instruction, and student support services of I-BEST courses. Personnel were classified into senior staff, faculty, and administrative staff. Labor hours per quarter and wages per hour were calculated for each classification. However, cost estimates are not precisely identified because it is difficult for personnel to exactly apportion time to I-BEST-specific activities.

⁹ Washington State also provided a total of 500 additional I-BEST FTE funded at \$9,800 to the system colleges in the 2007–2009 biennium for increasing the capacity of I-BEST programming across the system.

Delivery costs. Estimated costs for delivering I-BEST programs are summarized in Table 3 (p. 19). Four of the programs in our sample were in health-related fields of study and three were in business. These are two of the most popular fields of study for I-BEST programs across all Washington colleges (Wachen et al., 2011). Class sizes ranged between 10 and 23 students.

The bottom panel of Table 3 describes the total cost of delivering I-BEST by college. The final column shows that the estimated cost per I-BEST program is on average \$29,450. This is the cost of running the program for a single section of students. Most of the spending is on instruction (58 percent), with 15 percent for management of the program and 5 percent for advising. Other costs were inputs such as additional student supports, program planning, and faculty professional development. Looking at individual programs, the results are reasonable: nursing and health programs are generally more expensive, and business programs tend to be cheaper; programs with more students tend to have lower costs per student.

Table 4 (p. 20) reports costs in ways that can be compared with business as usual. These are best interpreted as the amount for a “generic” I-BEST program, recognizing that costs may be higher or lower depending on how I-BEST is implemented and for which subjects.

The first row reports per student costs. These vary from about \$410 to \$3,880 with an average of \$1,920. However, the individual college program estimates should not be over-interpreted. These programs do not all have the same number of credits, and they are in different disciplines. (Given that the unit of interest is the I-BEST program, rather than credits, it is preferable to compare costs at this level). As noted above, it is not easy for colleges to assign hours

of advising or management to single programs. Also, the cost estimates are for specific I-BEST programs within a college; the total cost to the college will reflect the mix of I-BEST programs offered. Finally, costs per student are sensitive to the numbers of students per class. The business program at college D therefore appears expensive on a per student basis, but this is largely a function of its class size being much lower than other I-BEST programs. Therefore, Table 4 also shows the cost per credit for each I-BEST program. These are much more narrowly compressed than the cost per student and average \$260 per credit. Finally, in the third row is the cost per I-BEST program, recognizing that these programs are spread over multiple quarters and courses. This program cost averages \$6,160 and ranges between \$2,250 and \$21,690.¹⁰

These costs should be compared to the costs of traditional basic skills courses and subsequent college-level courses that would allow the student to attain the same college standing (measured in number of credits) as with an I-BEST program. Estimates of the costs of providing these basic skills and college courses are given in Table 4. These cost estimates are based on total college expenditures divided by the number of credits provided, accounting for the credits needed to attain equivalent standing.¹¹ As shown, the average cost for equivalent program credits is \$4,570 per program.¹² At issue is whether the additional cost of I-BEST is justifiable.

5.2 Cost–Benefit Analysis

An economic evaluation of I-BEST could take one of three analytical approaches: cost consequences, cost-effectiveness, and cost–benefit. Each approach serves a different purpose. Fundamentally, each form of analysis is based on an economic interpretation of the impacts

¹⁰ This range suggests caution in interpreting costs in relation to specific courses: the variation is such that there is not an automatic relationship between a course and its costs. Also, there is no automatic relationship between costs and effectiveness.

¹¹ This calculation assumes that resource use for basic skills courses (and the associated types of college courses) aligns with the average resources available for each course across the college (i.e., the colleges do not cross-subsidize basic skills relative to other courses). This assumption is more plausible for colleges where a large proportion of total programs are basic skills. As given in the final row of Table 4, basic skills comprises on average 20 percent of all course offerings (at one college it is 39 percent); if related college-level courses are counted, the percentages grow significantly higher. The opportunity for cross-subsidy is therefore much smaller. Possibly, basic skills courses require more resources than other courses because class sizes are smaller; alternatively, they may require fewer resources because faculty pay is lower. Washington State does provide special funding for basic skills courses above the funding allocation, which suggests that these courses require extra resources. However, the amount is typically less than 0.5 percent of total funding.

¹² An alternative approach is to bound the program credits for traditional basic skills at between 3 and 10 credits. These boundary value cost estimates are then compared to each I-BEST program, regardless of its actual program credits. This method yields benefit–cost ratios that are slightly higher than those reported here.

Table 3
Costs of Providing I-BEST Programs

	College A	College B	College C	College D (a)	College D (b)	College E	College F	College G	College H	Average across 9 programs
Class size	10	16	19	10	15	20	23	16	12	
Program area	Law	Business	Nursing	Business	Nursing	Health	Business	Sciences	Health	
Credits related to total cost	3	5	8	15	12	7	5	5	9	7.61
Quarters for this I-BEST program	2	3	2	1	1	2	4	3	2	2.22
Total credits for this I-BEST program	18	45	15	15	12	13	34	52	18	24.67
Costs										
Management ^a	\$2,146	\$182	\$21,695	\$2,567	\$2,426	\$4,157	\$536	\$386	\$5,247	\$4,371
Advising ^b	\$1,020	\$0	\$2,447	\$934	\$1,207	\$2,735	\$857	\$1,650	\$1,600	\$1,383
Instruction ^c	\$5,293	\$5,394	\$17,752	\$29,000	\$24,416	\$32,663	\$8,944	\$27,830	\$2,612	\$17,100
Other ^d	\$2,567	\$911	\$23,461	\$6,311	\$5,697	\$8,759	\$2,122	\$5,315	\$4,226	\$6,596
Cost per Program	\$11,025	\$6,487	\$65,355	\$38,812	\$33,746	\$48,315	\$12,458	\$35,181	\$13,686	\$29,452

Notes: ^aManagement includes course planning, faculty recruitment, curriculum approval, student recruitment, student advising, and course evaluation. ^bAdvising includes advising and/or student support services dedicated specifically to I-BEST students. ^cInstruction includes class hours and contact hours outside the classroom related to instruction. ^dOther includes fringe benefits applied as appropriate, facilities, and overhead costs applied based on NCES (2011, Table 6).

of I-BEST. The salient impacts of I-BEST are taken from Zeidenberg et al. (2010). Controlling for endogeneity, Zeidenberg et al. (2010, p. 16) reported that: “On average, I-BEST students earned 18 college credits. ... Non-I-BEST Workforce students earned 9 college credits. ... Non-I-BEST Non-Workforce students earned 11 college credits.” This difference in accumulated credits has an economic value.

We considered three different approaches to the economic evaluation of I-BEST, two of which were deemed inappropriate for this analysis. A *cost consequences analysis* would trace through the full resource implications of I-BEST from the college’s perspective and would be useful for discovering whether I-BEST would “save the college money” over time (e.g., if it reduced future counseling service needs). However, a cost consequences analysis, although possible, would be unlikely to yield

significant information for our purposes, and the requisite data are not available in any case. A *cost-effectiveness analysis* of the model would determine whether it is cheaper to obtain educational outcomes using I-BEST or traditional basic skills (and college-level) programming. However, it is unlikely that the many aspects of improvement resulting from I-BEST can all be expressed in terms of a single outcome measure such that a cost-effectiveness analysis would be informative.¹³ Perhaps more importantly, there is no intention to identify the most cost-effective provider of I-BEST programs across all the participating colleges.

A *cost-benefit analysis* provides information on whether I-BEST yields resource savings (benefits expressed in money terms) that justify the costs from a social perspective. That is, are the incremental outcomes of I-BEST worth more to society than the cost of providing the programs? This approach has the clearest interpretation

¹³ One program may improve course completion; another may raise credit accumulation. Cost-utility analysis would be required to weight these two outcomes to be expressed as a single metric.

Table 4
Costs of I-BEST Programs Compared with Basic Skills Credits

	College A	College B	College C	College D (a)	College D (b)	College E	College F	College G	College H	Average across 9 programs
I-BEST program:										
Cost per student	\$1,103	\$405	\$3,440	\$3,881	\$2,250	\$2,416	\$542	\$2,199	\$1,140	\$1,918
Cost per credit	\$368	\$81	\$459	\$259	\$187	\$345	\$108	\$417	\$127	\$261
Cost per program ^a	\$6,615	\$3,649	\$6,879	\$3,881	\$2,250	\$4,486	\$3,683	\$21,686	\$2,281	\$6,157
Total cost for equivalent program credits	\$3,335	\$8,339	\$2,780	\$2,780	\$2,224	\$2,409	\$6,300	\$9,636	\$3,335	\$4,571
% College FTEs in basic skills	18%	15%	25%	39%	39%	7%	18%	10%	14%	20%

Sources: I-BEST total cost and student enrollment are from Table 1. The total cost for equivalent program credits (i.e., basic skills courses) are from 2009–10 WA SBCTC Academic Year Report, Section VI, available at http://www.sbctc.ctc.edu/college/d_acad.aspx. Notes: ^aCosts for Basic Skills are calculated as total college expenditures divided by credit FTEs. ^aCost per program is for multiple quarters and credits.

and is therefore used here. Also, if I-BEST passes a cost-benefit test, it will logically pass a cost-effectiveness test. The former test is more helpful in determining the full value of I-BEST; the latter test is typically used to compare programs to see which one yields educational outcomes at the lowest cost. If the full value of I-BEST is positive, this will be because it yields outcomes at the lowest cost, and it will mean that the program is a good investment.

To conduct the cost-benefit analysis, it was necessary to value the nine additional credits of I-BEST participants over non-I-BEST workforce students. For sensitivity analysis, we also compared I-BEST participants with non-I-BEST, non-workforce participants (a gain of seven credits). The benefits are calculated as society's willingness to pay (WTP) for community college credits; using the market analogy method, this WTP is how much society spends per credit. The cost-benefit calculations are given in Table 5. These

calculations were made by comparing the incremental cost of an I-BEST program against the incremental benefits in terms of additional credits. The incremental cost of an I-BEST program is on average \$1,590 (see Table 5), although again there is considerable variation across the sites. This is the amount it would cost the college to deliver the same number of credits as an I-BEST program. The incremental benefit is either approximately \$1,670 or \$1,300 depending on which workforce student comparison group is being considered. (We note that these are average benefits and not site-specific, such that each college did not necessarily accumulate the same benefits.)

The net benefits of an I-BEST program are therefore on average \$80 or -\$290. The benefit-cost ratio is therefore 0.82 to 1.05. Thus, the benefits of the I-BEST program approximately equal the additional costs incurred by the program.¹⁴ Sensitivity analysis suggests that the net benefits

¹⁴ Given the very large variation in costs and the fact that the benefits are not college-specific, we caution against interpreting the results per college. These results are instead indicative of the possible range of benefit-cost ratios.

Table 5
Cost–Benefit Analysis of I-BEST Programs Compared with Basic Skills Credits

	College A	College B	College C	College D (a)	College D (b)	College E	College F	College G	College H	Average across 9 programs
I-BEST program:										
Incremental cost ^a	\$3,280	–\$4,690	\$4,100	\$1,102	\$26	\$2,077	–\$2,617	\$12,051	–\$1,054	\$1,586
Incremental benefits ^b										
Non-I-BEST Workforce (B1)	\$1,668	\$1,668	\$1,668	\$1,668	\$1,668	\$1,668	\$1,668	\$1,668	\$1,668	\$1,668
Non-I-BEST Non-Workforce (B2)	\$1,297	\$1,297	\$1,297	\$1,297	\$1,297	\$1,297	\$1,297	\$1,297	\$1,297	\$1,297
Net benefits:										
B1–C	–\$1,612	\$6,357	–\$2,432	\$566	\$1,642	–\$410	\$4,285	–\$10,383	\$2,722	\$82
B2–C	–\$1,983	\$5,987	–\$2,803	\$195	\$1,271	–\$780	\$3,914	–\$10,754	\$2,352	–\$289
Benefit-cost ratio:										
B1/C	0.51	–0.36	0.41	1.51	63.80	0.80	–0.64	0.14	–1.58	1.05
B2/C	0.40	–0.28	0.32	1.18	49.62	0.62	–0.50	0.11	–1.23	0.82

^aIncremental cost per student of I-BEST over traditional basic skills courses for equivalent credits. ^bEconomic benefits of incremental credits of I-BEST. Benefits are based on a per-credit value of \$187.

of I-BEST may exceed those reported in Table 5 (i.e., the WTP may be higher). However, following convention, we report these more conservative estimates.¹⁵

5.3 Program Scale

I-BEST is reaching only a fraction of all basic skills students in Washington State. Even with yearly increases in the numbers of students participating in I-BEST, fewer than 10 percent of all basic skills are involved. In the academic year 2010–2011, Washington State colleges had 21,570 basic skills full-time equivalent (FTE) students enrolled and 1,742 FTE students enrolled in I-BEST programs (Washington State Board for Community and Technical Colleges, 2011). There are two major limitations to enrolling larger numbers of students in I-BEST programs.

First, many programs are targeted at specific skill levels within the adult basic education and English as a second language populations. Specifically, in some cases program rigor requires the setting of minimum qualifications for program entry to ensure that students enrolling in the programs have a strong likelihood of success. A program advisor noted this limitation, stating,

The biggest limitation is students who are qualified to succeed. We could open the doors to lower skilled populations, but they would likely fail the college-level courses. This leaves us stuck where we are unless we see success rates going up among the lower level students.

¹⁵ It is likely that the actual economic gain is greater, as only one impact of I-BEST has been counted. Other advantages of I-BEST are reported in Zeidenberg et al. (2010), although it is hard to place a monetary value on these advantages.

Similarly, a college president stated,

It's difficult to expand because if we're not successful getting our students to [basic skills] level 3 or higher—where they can benefit from I-BEST—then we don't have enough students to enroll into I-BEST. We have to do basic skills levels 1 to 3 better. How can we be more effective at the lower levels?"

Some programs are therefore necessarily limited in the number of students who can be served. Several colleges have begun to address this issue with bridge programs to be completed prior to I-BEST or with other preparatory measures at the front end of the education pathway. These serve to raise the academic skills of potential participants to levels at which they can succeed in I-BEST and associated career-technical education classes.

The second major limitation to serving more students is that there may not be adequate support and interest in the I-BEST model for it to be an appropriate intervention for every field of study in career-technical education. Administrators have been thoughtful about expanding I-BEST and have carefully considered faculty interest, the potential of particular programs to prepare students for the labor market, and the ability to recruit enough students to warrant the additional support and instruction that are provided as part of the program. Broader applicability of the instructional component of the model is also an issue. There was some indication that the instructional approach might be more effective in certain fields of study than others. For example, a welding instructor stated,

It works best for a hands-on program like this. You have to incorporate math and English in some sort of hands-on way like that. Then they're going to get it [the math and English skills] and they're going to enjoy it.

This concern about the applicability of the I-BEST instructional approach was raised by faculty and administrators at several of the colleges.

Several administrators noted that programs that had difficulty recruiting large numbers of basic skills students were not sustainable under the current model, because additional support needed by I-BEST students would be too costly to implement without sufficient enrollment. One college addressed this issue by implementing a slightly adapted, more flexible version of the I-BEST model. The college administers the Comprehensive Adult Student Assessment Systems (CASAS) basic skills test to entering students in approved I-BEST programs, and when enough students score at the appropriate levels to qualify for additional support, the program is offered. If there are not enough qualifying students, I-BEST is not offered during that term, which reduces the cost of the program. Using this approach, the college has been able to adapt to changes in the student population, thereby increasing the sustainability of the model.

Our findings suggest that I-BEST programs, on average, provide benefits that justify the costs of the programs. However, I-BEST does require more resources than traditional basic skills courses and as such, colleges may be unable to allocate sufficient funds toward the approach even as it proves effective. As one administrator stated, "Especially given the current budget, we're going to have to prioritize what we want to do in basic skills and ESL. If the college had to prioritize, we'd pick I-BEST because it's proven to help transitions and accelerate students." Similarly, another administrator commented,

If we are really careful about designing programs and we get the enrollments we need, I think that the benefits might offset the costs. You're transitioning students to be successful and you can look at other ways that the college is impacted, such as the Student Achievement Initiative.

Colleges will likely have to choose between enrolling more students with similar outcomes as in years past through the traditional approach or enrolling fewer students with better outcomes. As the reference to the Student Achievement Initiative performance policy in the last quote suggests, it may help to have external incentives to focus on student outcomes and not just on enrollments.

6. Summary and Recommendations

6.1 Key Findings

This report identified several key elements of the I-BEST program model that program leaders, faculty, and students perceived as essential to achieving positive impacts on student outcomes. In particular, we analyzed the structural components of the model and the instructional approach it employs. We attempted to determine whether there are correlations between different variations of the model and performance, although the data available allowed us to make only a rough assessment of program performance and prevented definitive conclusions about which practices are effective. We also examined the student experience in I-BEST programs and conducted a cost analysis to inform our discussion of the sustainability of the model.

Structure. I-BEST programs appear to be highly structured, limiting complex decisions about program and course selection and offering support services and assistance with securing financial aid. However, the programs vary in effectiveness in enabling students to advance to higher level training and credentials. Our analysis of the structural components of the model suggests that the level to which colleges and programs developed the structure and support—provided not only by I-BEST courses but also throughout a career-technical program—may account for some differences in performance, although again our performance measures are too imprecise to draw definitive conclusions. Program leaders and administrators often noted the importance of program pathways *after I-BEST* with functional transitions and adequate student supports.

Instruction. I-BEST programs vary in the degree of integrated instruction and team teaching, but also offer contextualized basic skills instruction. Integrated instruction incorporates reading, writing, or math instruction into the teaching of technical content. Contextualized instruction involves the teaching of basic skills against a backdrop of specific subject matter to which such skills need to be applied, as is done in support courses and learning labs. Contextualized instruction frequently occurs in I-BEST support courses and during portions of the technical courses. Both integrated and contextualized instruction were perceived as beneficial by instructors and

students. We found that I-BEST programs exhibited a combination of integrated instruction and contextualized basic skills instruction, which suggests that a high amount of integration may be less essential to the instructional approach than providing this combination of the two forms of instruction.

Student experience. Students responded positively to the structural component of the program design and the instructional approach. I-BEST students expressed increased confidence and ability to succeed in college-level courses, and many were eager to continue on to additional credentials at the colleges.

Program sustainability. Estimated I-BEST program costs vary widely and depend on several factors, including field of study, number of students served, and costs for instruction and support services. Our cost analysis found that I-BEST programs cost more, on average, than the total average cost for equivalent regular credits (\$6,157 compared with \$4,571). We also conducted a cost-benefit analysis and determined that the benefits of I-BEST programs approximately equal the additional costs incurred by providing the programs. However, although the benefits justify the costs, given both the substantially higher costs of I-BEST over traditional basic skills instruction and the funding constraints and limitations on the scale of programs, colleges will have to decide whether they want to sacrifice larger enrollments and serve smaller numbers of students to achieve better outcomes.

6.2 Recommendations

Previous research on the I-BEST program model found it to be an effective approach to transitioning low-skilled students to college-level programs of study and for increasing the rate at which such students earn postsecondary credentials in career fields. However, the I-BEST model as implemented in Washington State may not be fully adoptable at postsecondary institutions in other states whose local contexts may be significantly different from those at Washington's community and technical colleges. There has also been a shift in thinking among higher education researchers and funders toward the idea that substantial improvements in completion can occur only with large-scale innovations and reforms to programs and policies, rather than with attempts to bring to scale small, "boutique" programs that are implemented at the periphery

of core institutional practices (Jenkins, 2011; Pleasants, 2011). Although I-BEST reaches a relatively small number of basic skills students in Washington State, specific elements of the approach may be applicable to other transition interventions designed to reach larger numbers of students. Therefore, our findings on the key components of the approach may be useful to funders, policymakers, and practitioners in other states that are considering implementing transition interventions that draw on particular design principles of the I-BEST model. We summarize some recommendations for the field below.

Transitions. Programs that are designed to increase the rate at which adult basic skills students transition into and through college-level programs need to consider all of the possible transition points and identify barriers to a successful transition to further education. Furthermore, programs where such barriers exist need to implement changes to both policy and practice to create clearly defined, viable pathways that directly connect completers to their next step. In particular, integrated programs that are short term (only 1 or 2 quarters) require strong connections with longer-term program pathways to encourage student progression; otherwise, students may exit with only short-term certificates that may provide only limited benefit in the labor market. There was general agreement among program leaders at the colleges we visited that obtaining a short-term certificate alone through an I-BEST program was not adequate for earning a living wage.

Readiness criteria. As part of the process of assessing pathways and transition points, it is necessary to consider the readiness of students who complete the intervention. Are they academically prepared to continue in career-technical programs beyond I-BEST and short-term certificates? What supports might they need to succeed after I-BEST? Program planners should consider the level of academic rigor and preparation that the program pathway requires. They should also consult with faculty who are teaching the “next step” courses to ensure that I-BEST program completers have gained the skills and knowledge needed to be ready for post-intervention, college-level coursework. This consideration is particularly important for interventions designed to help low-skilled students complete longer-term certificates and degrees.

Integration and contextualization. While highly integrated team teaching models in which instructors co-teach in the classroom may be difficult to implement and sustain, we found that I-BEST programs benefit from a combination of integrated instruction and contextualized basic skills instruction, in which basic skills are taught against the larger context of the career programs students are pursuing. This finding suggests that interventions for low-skilled students should place greater emphasis on incorporating both integrated instruction and contextualized basic skills instruction than on team teaching per se. This will not only help ensure strong instruction but will add flexibility to program delivery.

Flexibility. The I-BEST model in Washington State requires that two instructors overlap in the classroom at least 50 percent of the time. Some instructors stated that this was not enough and that 80 to 100 percent overlap was necessary; others wanted more flexibility in the required amount and felt that the 50 percent overlap may be more useful as a guideline or starting point. There was concern that maintaining 50 percent overlap throughout the program was unsustainable because of the cost. Below are three possible variations on the model that may allow for additional flexibility.

- (1) The overlap in the classroom is concentrated at the beginning of the program sequence and decreases over time as students in each cohort become more familiar with the content.
- (2) There is more integration when a college starts a new program or a new faculty team begins teaching together. Once the instructors establish their curricula, gain basic skills and technical content knowledge from each other, and understand their respective teaching styles, the amount of overlap decreases with subsequent cohorts of students.
- (3) More resources are devoted to the two instructors engaging in joint planning prior to and during the program and to the development of a contextualized basic skills curriculum that aligns with the technical content. There is minimal classroom overlap throughout the program.

Transition interventions that include integration or contextualization need to consider the amount of overlap (and degree of flexibility), and this will depend on the field of study and the resources of the institution.

Planning time. Program leaders and instructors teaching in I-BEST stated that planning was a critical but often overlooked component of the model. Many instructors reported that they were meeting with co-instructors outside of class on their own time and were not receiving sufficient support from their colleges to plan for the program. Given that integrated transition interventions like I-BEST can be challenging to implement, it is important to incorporate adequate planning time for instructors. For interventions with more flexible approaches to instruction, in which instructors may not be spending as much time together in the classroom, joint planning is likely to be even more important.

State- or system-level support. Even if colleges in other states develop less costly transition programs by selectively adapting I-BEST design principles, they are likely to need financial incentives to offer such programs since the cost of established basic skills programs are so low. In Washington State, the I-BEST model has received strong support from the State Board for Community and Technical Colleges. Specifically, the SBCTC provides financial support for the model through enhanced FTE funding and through its Opportunity Grant financial aid program, which is designed to support low-income students in I-BEST and in regular career-technical programs. The SBCTC also provides incentives for colleges to offer I-BEST through its Student Achievement Initiative performance funding policy. This system-level commitment has been particularly critical during the past several years as colleges across the state have been dealing with difficult decisions about eliminating programs and services as the result of sharp cuts in state funding.

Despite this commitment from the state and despite our finding that the program benefits justify the costs, colleges in Washington have been constrained in their capacity to expand I-BEST to broader numbers of students because of cuts in state funding and challenges in recruiting students. In deciding how far to expand enrollment in I-BEST and I-BEST-like programs, colleges in and outside of Washington State will likely have to decide whether they want to sacrifice larger enrollments and serve smaller numbers of students for better outcomes. model and noted that the relationship often takes time to develop. Given the importance of this relationship, a system of supports for faculty, particularly in the early stages of collaboration, would likely facilitate implementation of effective I-BEST instruction.

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Appendix

Questionnaire for I-BEST Program Evaluation Resources Analysis

An important part of the I-BEST evaluation is an analysis of the resources involved in operating I-BEST programs. For this analysis, we are asking I-BEST program managers to complete the following questionnaire on resources. This information is confidential to the research study.

In answering the questions, please think about a single I-BEST course/section in the most recent quarter.

You may choose any course but relate your answers to this course/section.

2a. What is the exact name of this course?

2b. How many students were enrolled?

3. How many hours do you spend in total on management of **this I-BEST course**? *(This includes course planning, faculty recruitment, curriculum approval, student recruitment, student advising and course evaluation; if you cannot break down these hours per course, please apportion hours based on number of courses.)*

5. Approximately, how many hours do other staff members at the college spend in total on management of this **I-BEST course**? *(This includes course planning, faculty recruitment, curriculum approval, student recruitment, student advising and course evaluation; if you cannot break down these hours per course, please apportion hours based on number of courses.)*

	Basic skills instructor	Prof-Tech instructor	Other staff providing I-BEST
6a. How many instructional/class hours are offered for this course?	Per week <input type="checkbox"/> or qtr <input type="checkbox"/> ?	Per week <input type="checkbox"/> or qtr <input type="checkbox"/> ?	Per week <input type="checkbox"/> or qtr <input type="checkbox"/> ?
6b. Are there other contact hours with students (e.g. support classes)?	Per week <input type="checkbox"/> or qtr <input type="checkbox"/> ?	Per week <input type="checkbox"/> or qtr <input type="checkbox"/> ?	Per week <input type="checkbox"/> or qtr <input type="checkbox"/> ?
6c. Salary payment for this course. <i>If not paid per course, write salary and number of courses it relates to.</i>			

7. Across all I-BEST courses at the college, do any staff provide advising and/or student support services dedicated specifically to I-BEST students?

Yes If yes, see question 8.

No If no, thank you for your time!

8. What are these persons' job titles?

9. How much time do they spend in total on advising all I-BEST students at the college?