

Preparing Students for College: Lessons Learned From the Early College

NASSP Bulletin
2017, Vol. 101(2) 117–141
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sagepub.com/journalsPermissions.nav
DOI: 10.1177/0192636517713848
journals.sagepub.com/home/bul



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Abstract

This article utilizes mixed methods—a lottery-based experimental design supplemented by qualitative data—to examine college readiness within an innovative high school setting: early college high schools. Early colleges are small schools that merge the high school and college experiences and are targeted at students underrepresented in college. Results show that early college students are more likely to have successfully completed the courses they need for entrance into college; early college students also graduated from high school at a higher rate. Interview and survey data show that early college students are generally considered similarly prepared to more traditional postsecondary students. The interview data also provide detailed descriptions of the kinds of strategies the schools use to support college readiness. The article concludes with lessons learned for secondary school principals.

Keywords

college readiness, high school reform, experimental study, mixed methods, early college

Policy makers and educators, particularly secondary school principals, have become increasingly interested in ensuring that the students who graduate from their high schools are ready for success in postsecondary education (Achieve, 2004). This concern is driven partly by a recognition that 21st-century jobs will require at least some form of postsecondary education (Carnevale, Smith, & Strohl, 2010). There have been

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many different policy and practice changes to ensure that more students are prepared for college (Edmunds & McColskey, 2007). One of the most innovative approaches is early college high schools, a relatively new model of high school purposefully focused on college readiness for all students (Edmunds, 2012). Lessons learned from this model can help other high schools that are seeking to increase college readiness experiences for their students. This article explores the extent to which early college students are ready for college and to describe the supports the school provides to get them ready. The study focuses on three key questions:

1. What is the impact of the early college model on students' college readiness?
2. How ready are early college students according to college faculty?
3. What strategies do early colleges provide to help students increase their college readiness?

Answers to these questions can provide high school principals with insights around how their school might be redesigned to support postsecondary readiness.

Theoretical Framework

Early colleges are environments that are designed to ensure that all students are ready to succeed in college. This section provides a brief overview of the literature on college readiness and the strategies that high schools can use to support college readiness. It concludes with a description of the early college model.

College Readiness

College readiness has primarily been conceptualized as students' level of academic preparation (Achieve, 2004), sometimes measured by one or more test scores. For example, some states have begun using the ACT or the SAT as indicators of academic readiness for students. Other longtime measures of academic readiness include the type and level of courses that students take in high school. Colleges often expect that students take a core set of academic courses that are expected to prepare them for college, commonly known as a college preparatory course of study. Successful completion of those courses is considered to represent students' mastery of the subject matter necessary for success in college. Correlational studies have also shown that successful completion of higher level high school courses, such as Algebra II, is associated with an increased likelihood of students graduating from college (Adelman, 2006; Adelman, Daniel, & Berkovits, 2003).

More recent work has recognized that college readiness is a complex and multifaceted concept. David Conley is one of the leading current theorists around college readiness (Conley, 2005, 2008, 2011). His recent work organizes college readiness components into four primary domains including (a) content knowledge; (b) cognitive strategies (i.e., problem formulation, research, interpretation); (c) key learning skills and techniques (including goal setting, help seeking, time management, technology

proficiency, etc.); and (d) transition knowledge and skills (such as postsecondary awareness, knowledge of college application and financial aid procedures, etc.; Conley, 2011).

In other work we have done, we have examined the way in which college faculty, early college faculty, and early college students define college readiness. Similar to Conley's work, we found that college readiness is much more complex and multifaceted than simply test scores (Arshavsky, Lewis, Thrift, & Edmunds, 2016). We organized individuals' conceptualizations of college readiness in three main categories that guide our work on this topic:

1. *Academic preparation.* This category includes content knowledge, key cognitive strategies and skills, and academic communication skills (e.g., reading, writing, presentation, and discussion skills).
2. *Academic behaviors and attitudes.* In this category fit organizational skills and learning techniques, such as time management, note taking, and study skills. This category also includes activities such as goal setting, self-advocacy, effort, and responsibility as well as social skills, including collaboration and social communication.
3. *Understanding of college processes.* This category includes attitudes, actions, and knowledge relative to the college transition process, such as college aspirations, understanding of the college application process and financial aid. It also includes the ability to understand how to operate in college, including the ability to navigate the college system, to register for courses, as well as an understanding of the norms, culture, and expectations of college.

Strategies to Build College Readiness

Practitioners and researchers have sought to develop and implement programs to increase students' readiness for college (Swanson, Mehan, & Hubbard, 1995; Tierney, Bailey, Constantine, Finkelstein, & Hurd, 2009). Specific strategies that schools use include: improving students' academic preparation; providing them early access to college courses; providing students with academic and affective supports; and assisting them with the logistical aspects of applying to college.

Academic Preparation. Most colleges require students to take a core set of academic courses to ensure that they are ready academically (Finkelstein & Fong, 2008). Additionally, one of the strongest predictors of success in college is the extent to which students take more advanced courses that are seen as being necessary for college (Adelman, 2006; Adelman et al., 2003). As a result, more states have moved to creating a default college-preparatory course of study for all students (Edmunds & McColskay, 2007). Some schools also implement strategies to increase students' reading and writing skills (Kamil et al., 2008; Slavin, Cheung, Groff, & Lake, 2008), skills that are highly important for success in college (Achieve, 2004).

College Courses. High schools have begun offering more and more students access to Advanced Placement or dual enrollment course with the goal of increasing students' readiness for college (Iatarola, Conger, & Long, 2011; Speroni, 2011). Many researchers have found that there are positive associations between these courses and postsecondary enrollment and performance (Allen & Dadgar, 2012; An, 2013; An & Taylor, 2015).

Student Support. Expanding students' access to more rigorous courses also needs to be accompanied by academic and affective supports (Lee & Smith, 1999). These type of supports can take the form of academic tutoring (Balfanz, McPartland, & Shaw, 2002), structured blocks of time, such as advisory periods, or even full courses designed to build students' organizational and study skills, such as AVID (Advancement Via Individual Determination; Swanson et al., 1995).

Logistical Preparation. The actual process of applying for college can be daunting for many students, especially for first generation college-goers (Castleman, Owen, & Page, 2015; Roderick, Nagaoka, Coca, & Moeller, 2008). Students can also face economic challenges in attending college (Bozick & DeLuca, 2011). When schools provide explicit assistance in the college application and financial aid process, students' postsecondary enrollment can increase (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2009; Tierney et al., 2009).

This article examines the issue of college readiness within the context of a very specific reform effort that incorporates many of the strategies described above: early colleges. The early colleges examined in this study were new schools that were explicitly and purposefully designed to support college readiness for all of their students. As a result, they can be considered almost as pilot sites or testing grounds for identifying some of the most effective strategies to affect college readiness. The next section describes the model as implemented in North Carolina, where this study takes place.

Early Colleges

Early colleges are small schools of choice that provide students with concurrent high school and college experiences, partially eliminating the transition between these two stages of education. The schools target students who are underrepresented in higher education, including those who are low income, are the first in their family to go to college, or are members of racial and ethnic groups underrepresented in higher education. Primarily located on the campuses of 2- or 4-year colleges and universities, early colleges are expected to provide an academically rigorous course of study with the goal of ensuring that all students graduate with a high school diploma and 2 years of university transfer credit or an associate degree. Some schools are structured as 4-year schools and some schools are structured to have students complete the curriculum in 5 years. As implemented in North Carolina (the location of this study), the students are able to take college courses at no cost to the family. Each early college is also expected to implement and exhibit a specific set of principles, known as Design Principles, developed by North Carolina New Schools (NCNS—the public-private partnership that supported these

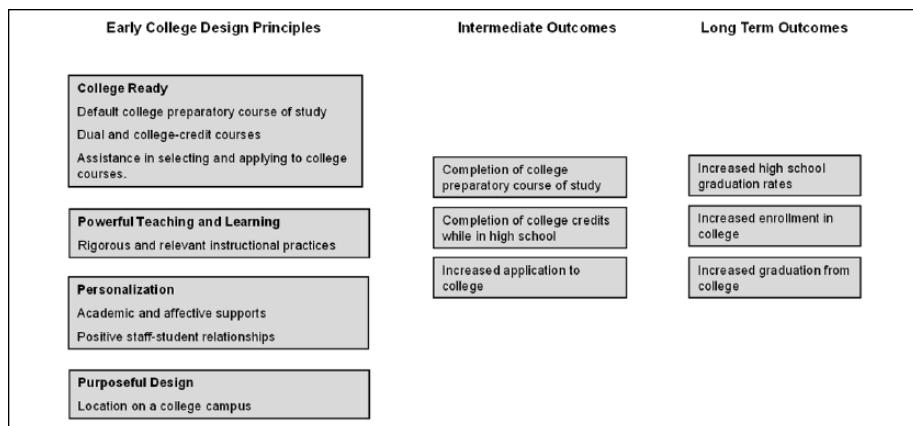


Figure 1. Early college theory of change relative to college readiness.

Source: Edmunds et al. (2017).

schools) that represent characteristics of high-quality high schools. These Design Principles, as articulated by NCNS, are as follows (NCNS, 2013):

1. *Ensuring that students are ready for college.* This includes making sure all students take the high school courses required for entrance into a 4-year university. It also involves early access to college courses and explicit instruction in college readiness skills.
2. *Instilling powerful teaching and learning in schools.* Early colleges are expected to implement instructional strategies that require students to “Read, Write, Think, and Talk” in every classroom every day.
3. *Providing high student/staff personalization.* High-quality staff-student relationships are a key characteristic of early colleges. Schools are also expected to provide students with the academic and affective supports needed to succeed in the more rigorous school environment.
4. *Redefining professionalism.* This Design Principle focuses on the experiences of the adults in the school and includes ongoing professional development and collaboration among the faculty.
5. *Leadership.* Early colleges are expected to have leadership that promotes a common vision centered on college readiness.
6. *Implementing a purposeful design.* The final Design Principle reflects the structures and systems that need to be in place to support the other Design Principles. Such structures include the use of time to support teacher collaboration and student support, the location of the school on a college campus, and the alignment of resources.

Figure 1 presents an overview of our Theory of Change relative to the aspects of the early college that are intended to most directly influence students’ readiness for college.

This article examines the impact of the early college model on students' readiness for college. It also describes the activities that the schools have undertaken to support college readiness. The hope is that high school principals can consider this information as they seek to improve the college readiness of their students.

Methodology

This article presents results that are part of a large-scale, longitudinal study funded by three consecutive grants from the Institute of Education Sciences. The study examines the impact of early colleges being implemented in North Carolina (which for many years had the highest number of early colleges in the country). The study uses an experimental design that capitalizes on the fact that some schools used lotteries to select students. All of the early colleges are schools of choice to which students apply. Schools that are part of this study had more applicants than they had spots and agreed to use a lottery as the last step in selecting their students. Using a lottery means that some students got in by chance and others did not, providing two comparable populations (students who were accepted into the early college and students who were not and attended their regular high school or other alternative). The study tracked both sets of students over time and looked at the differences between the two groups.

The study also included qualitative and descriptive quantitative components that were designed to explore college readiness within the early college (Creswell, Plano Clark, Gutmann, & Hanson, 2003). The specific methods used to answer each of the research questions are described below.

Question 1: Impact on College Readiness

We used two different measures for examining the impact of early colleges on students' college readiness: (a) successful completion of a college preparatory course of study and (b) high school graduation. Both of these outcomes were examined using an experimental design.

The first outcome focused on the impact of the model on the number of students taking and succeeding in the courses needed for entrance into a 4-year college (in this case, the University of North Carolina [UNC] system). This could be considered as a measure of students' academic preparation. For this article, we looked at being on track for college at two time points: in 10th grade and by the end of high school. To develop these measures, we took the courses required for entrance into the UNC system and identified the last possible year a student could take such a course without doubling up in a given year. For example, for a student to be on track in 10th grade, they had to have taken and successfully completed two college preparatory mathematics courses, two English courses, and one science course. For a student to be on track by the end of high school, they had to have successfully completed four college preparatory math courses, four English courses, three science courses, and three social studies courses.

The second measure is students' graduation from high school. Because some early colleges are 5 years by design, we looked at a 5-year cohort graduation rate. The data came from information collected by the North Carolina Department of Public Instruction and housed at the North Carolina Education Research Data Center at Duke University.

The sample for the graduation analyses was 2,858 students who applied to 19 early colleges for the fall of 2005 through 2009. For this analysis, all students who were originally in the lottery were included unless we had evidence that they had transferred to a private school or homeschool environment or moved out of state. The sample for the on-track analyses was a subset of the graduation sample and included 2,429 students who applied to 19 early colleges for the fall of 2005 through 2009. Students who were missing in any given year were excluded from the course-taking analyses (because we did not know if they had taken any courses or not) but students who dropped out remained in the analyses and were counted as off track. Table 1 shows the characteristics of the graduation sample.

The impacts of early colleges on these outcomes were estimated within an Intent-to-Treat (ITT) framework. Under ITT, which is considered the standard for education policy studies (Institute of Education Sciences, 2005), students remain in the group to which they were originally assigned (treatment or control) even if they did not attend the school or left at some point. For each outcome, we calculated unadjusted means for the treatment and control groups. We then calculated adjusted impact estimates using multivariate linear regression models that include lottery indicators (or lottery fixed effects), and baseline student characteristics including several demographic characteristics such as gender, race/ethnicity, first-generation status, economic disadvantage, and eighth-grade academic performance.

Question 2: Perceptions of Readiness

The experimental data provide powerful evidence of effectiveness for certain aspects of academic readiness, but they provide a limited picture of other aspects of students' college readiness. To provide a fuller understanding of college readiness, we conducted site visits to 15 early colleges. Each site visit lasted approximately 2 days and was conducted by two researchers. During the site visits, we conducted interviews with at least two college faculty members at each site, who taught early college students in their college classes (for a total of 32 faculty members) and asked them to complete a survey rating early college students' readiness on a variety of different dimensions that captured different aspects of readiness. All interviews were also transcribed and then entered into Atlas.ti for analyses. Using a mix of deductive and inductive coding, we started with a list of codes (identified a priori) and then added codes as needed. We met periodically to ensure that the members of the research team had the same understanding relative to the codes. Finally, the codes were analyzed to identify themes relative to perceptions of college readiness. We also summarized the survey responses from the college faculty and reported frequencies.

Table 1. Sample Characteristics by Treatment Status.

	Whole	Treatment	Control		
	Sample	Group (N = 1,647)	Group (N = 1,211)	T – C difference	
	Mean	Mean	Mean	Difference	p
Race and ethnicity					
American Indian	1.1%	0.8%	1.3%	–0.5%	.18
Asian	1.0%	1.0%	1.1%	–0.1%	.89
Black	27.7%	28.2%	27.0%	1.2%	.49
Hispanic	7.9%	8.4%	7.3%	1.1%	.29
Multiracial	3.2%	2.8%	3.7%	–0.8%	.21
White	59.1%	58.8%	59.6%	–0.9%	.65
Gender					
Male	41.0%	40.8%	41.2%	–0.4%	.82
Age	15.33	15.32	15.35	–0.03	.08
Socioeconomic background					
First-generation college	40.2%	39.2%	41.5%	–2.2%	.27
Economically disadvantaged	49.0%	49.3%	48.7%	0.6%	.76
Exceptionality					
Disabled/impaired	2.2%	1.7%	2.9%	–1.2%	.04*
Gifted	8.3%	7.7%	9.0%	–1.3%	.20
Retained prior to ninth grade	3.7%	2.9%	4.7%	–1.7%	.01*
Eighth-grade achievement					
Math, z score	–0.01	–0.01	0.01	–0.02	.61
Reading, z score	0.00	0.01	–0.02	0.03	.46
Math—pass	81.7%	83.4%	79.4%	4.0%	.01*
Reading—pass	80.3%	81.2%	79.1%	2.0%	.18

Note. These characteristics are reported for the sample used in the graduation analyses, which is the largest sample.

Question 3: Supports for College Readiness

During the site visits to 15 early colleges mentioned above, we also conducted interviews with core early college staff including the principal, the college liaison (an individual who facilitates the interactions between the colleges and the high school), two teachers, and a focus group of students. During these interviews, we asked questions concerning the supports provided by the school to get students ready for college. The interviews were transcribed and analyzed as described above.

Results and Discussion

The three research questions are designed to help secondary school principals determine whether early colleges are successful and if there are strategies that can be

Table 2. Course-Taking and Progression Outcomes—10th-Grade, Longitudinal Sample.

Outcomes		ECHS Adjusted mean (N = 1,434)	Control Unadjusted mean (N = 995)	ITT Estimate
Overall	% Take-up	91.39	84.31	7.08*
	% Progress	89.07	80.41	8.66*
English	% Take-up	98.82	98.80	0.02
	% Progress	97.01	96.11	0.90
Math	% Take-up	91.76	84.31	7.45*
	% Progress	89.70	81.27	8.43*
Science	% Take-up	99.92	99.39	0.53^
	% Progress	99.65	98.59	1.06^

Note. ECHS = early college high school; ITT = Intent-to-Treat. Statistically significant differences (at the $p < .05$ level) are denoted by *. For the outcomes that are close to 100%, the ITT estimate is set to be equal to the unadjusted difference, and the p value is calculated using Fisher’s exact test; any of those estimates that are statistically significant are denoted by ^.

applied in their own settings. Results are presented below and are organized by the questions.

Early College Impact on Academic College Readiness

The experimental analyses show that students in the early college are more ready for college than the control group, when readiness is defined as taking and succeeding in the courses they need for college. Table 2 shows the results for 10th graders. It includes the percentage of students who had taken the course(s) they needed (“Take-up”) and the percentage of students who had taken *and* passed the course (“Progress”). Table 2 shows that 91% of treatment students had taken the courses needed to be on track for college in 10th grade compared with 84% of the control group. In looking at the percentage of students who successfully completed the courses they need, we see 89% of treatment students as on track for college compared with 80% of the control group. Table 2 also shows the extent to which students were on track by subject area. This shows that the differences between the early college and the control groups were really being driven by enrollment in college preparatory mathematics.

A similar pattern was shown in looking at the percentage of students who finished high school having successfully completed a college preparatory course of study. Table 3 shows that more treatment students had successfully completed the courses required for college entrance than control students by the end of high school and, again, that the difference was primarily driven by math. The table also shows a negative impact on English course taking but given that both groups were very close to 100%, we do not believe this impact to be substantively important.

In considering the results relative to college preparatory course taking, it is important to note that the early colleges have a default college preparatory course of study

Table 3. Course-Taking and Progression Outcomes—by the End of High School, Longitudinal Sample.

Outcomes		ECHS Adjusted mean (N = 1,434)	Control Unadjusted Mean (N = 995)	ITT estimate
Overall	% Take-up	80.14	74.07	6.07*
	% Progress	76.40	71.52	4.88*
English	% Take-up	97.70	98.49	-0.79
	% Progress	95.54	97.49	-1.95
Math	% Take-up	89.54	84.17	5.37*
	% Progress	87.68	82.75	4.93*
Science	% Take-up	98.96	99.10	-0.14
	% Progress	98.04	98.28	-0.24
Social Studies	% Take-up	99.93	99.60	0.33
	% Progress	99.79	99.40	0.39

Note. ECHS = early college high school; ITT = Intent-to-Treat. Statistically significant differences (at the $p < .05$ level) are denoted by *. For the outcomes that are close to 100%, the ITT estimate is set to be equal to the unadjusted difference, and the p value is calculated using Fisher's exact test; any of those estimates that are statistically significant are denoted by ^.

for all of their students. This is certainly something that traditional high schools could also do; in fact, many states have made policy changes requiring all students to complete a college preparatory course of study in order to graduate from high school. Our study spans the period both prior to and after North Carolina's alignment of its graduation requirements with the college entrance requirements of the UNC system. Prior to the change, the impact of the early college was much larger on college preparatory course taking. After the change was made, the impact became much smaller because most students in traditional high schools were also required to take a college preparatory course of study.

The second outcome examined relative to students' college readiness was their graduation from high school. The analysis of 5-year graduation rates showed that early college students were graduating at a rate that was 3.6 percentage points higher than the control students (86.2% vs. 82.6%), although this rate was not statistically significant. Thus, the experimental data show that early college students were more likely to be on track for college although the larger gains seen in course taking were not necessarily borne out by similarly large gains in high school graduation rates.

Perceptions of College Readiness

The experimental, quantitative data show that early college students appeared to be more ready for college as shown by an increased number of treatment students successfully completing a college preparatory course of study and graduating from high school. Yet, as discussed in the literature review above, college readiness is a much

more complex concept that includes knowledge and skills that fall in our three categories: (a) academic preparation, (b) academic behaviors and attitudes, and (c) understanding of college processes. Interviews with and surveys completed by college faculty provide additional insights relative to other aspects of college readiness.

In general, the interviewed college faculty believed that early college students ranged in their preparation for college with some students being very well prepared and others not as well prepared. A professor at Laurel Community College¹ said, "I've had early college students who are the best I've ever had in a given class. And then I've had some who are just really not ready to be there." The other college instructor at Laurel Community College thought the early college students were overall better prepared than regular students:

I think in relation, especially if I compare the students we have, I think by and large the students are better prepared in most respects than the college [students] we have. There's a few areas that they are a little weak in, but as far as coming into a college class and adjusting to college norms, they have a better sense of what to do than many of our students.

Faculty at four colleges noted that one of the real strengths of early college students was that they exhibited greater interest in learning and doing well than regular college students. An instructor at Rockcastle Community College said, "They seem to be more excited about the subject than maybe a traditional student." As an instructor at Bracken Community College said,

One thing I've noticed with these early college kids is that they really—they're here to get their work done. They'll say that they're here and they're excited because it's their only way to get an associate degree. So they're motivated, I think maybe more so than your typical college kid because they get great benefit out of this program. So I would say from what I can see it's just the investment level is pretty high as far as their education and wanting to get things out of the class.

College instructors most frequently noted that, for those students who were seen as not ready for college, their maturity level was an issue. Lower levels of critical thinking, challenges in comprehending academic texts and writing college-level papers, as well as exhibiting some poor academic behaviors (e.g., submitting assignments on time, responsibility for own learning) were all attributed to students' immaturity and/or lack of life experiences. For example, the liaison at Edmonton Early College said,

... it's more about maturity than the actual ability to do well in the class. They talk about the behaviors of the students, whether it's coming to class unprepared or coming to class and not really being focused and kind of putting their head down and kind of zoning out and not being actively involved in a class.

During the interviews, college instructors were given time to respond to a two-part survey in which they were asked first to rate the degree to which they believed, from

their experiences and feedback from other college instructors, that early college students were prepared for college. The second question then asked college instructors to compare the degree to which early college students were prepared for college compared with the regular college students they teach.

As indicated in Table 4, college instructors felt that early college students were “somewhat prepared” to “very prepared” for most aspects of college readiness. Table 4 includes the frequency of each response and the mean. The cell with the highest number of responses (the mode) for each row is in bold. The responses on the table are organized by the three categories of readiness.

Because college instructors might certainly be dissatisfied overall with the preparation of all of their students, we asked them to compare the early college students with the students who come to them via a more traditional route. Table 5 presents the results when college faculty were asked to compare early college students with their regular college students. Similar to Table 4, in general, college instructors rated early college students as being “about as well prepared” or “better prepared” than regular college students in most of the areas. The areas in which college instructors rated early college students somewhat less prepared compared with regular college students were writing college-level papers and getting help from other resources on campus (e.g., writing center, academic help center, etc.).

The lowest rating by college instructors pertaining to college preparedness was related to early college students’ ability to write college-level papers. However, comments about the ability of early college students to write college-level papers varied. In some cases, college instructors believed that early college students were not well prepared to write college-level papers, citing poor vocabulary and/or grammar, inability to develop a thesis or outline, and lack of understanding about the role of editing/revisions in writing. In other instances, college instructors found that early college students exhibited the ability to write at the college level or had a sufficient foundation in writing on which to build. For example, the English instructor at Laurel Community College noted that early college students were actually better prepared than the students from the traditional route:

Frankly, the writing level of the students coming in compared to the students we normally have is usually—better is a tough word, because we’re talking about writing, we’re talking about a lot of different areas. [The early college students] usually have more developed skills for me to work with, they need to go someplace, they’re not college level yet, they’re not where they need to be, but it’s a little bit easier often times to take them someplace than it is the students who are from our traditional channels.

Overall, the college faculty saw students as ready for their college classes, even though the level of readiness might have varied by the student or by the early college. Given that early colleges can be seen as successful in increasing students’ college readiness, it is worthwhile to examine the strategies that they use. We look at this in the next section.

Table 4. College Instructors’ Perceptions of Early College Students’ Level of Preparedness.

Question	Not at all prepared	A little prepared	Somewhat prepared	Very prepared	Mean	Total responses
<i>Academic knowledge</i>						
Understand the content of the class	1	7	14	10	3.03	32
Read college-level textbooks or articles	2	8	15	7	2.84	32
Write college-level papers	3	10	13	1	2.44	27
<i>Academic behaviors and attitudes</i>						
Behave appropriately in class	0	3	16	13	3.31	32
Take part in class discussions	1	7	9	15	3.19	32
Ask for help from you or another college professor	1	5	14	12	3.16	32
Take responsibility for their own work	1	9	9	13	3.06	32
Take part in group projects or study groups on campus	3	4	11	11	3.03	29
Take notes in class	1	5	19	7	3.00	32
Finish and turn in assignments on time	4	7	11	10	2.84	32
<i>Understanding college processes</i>						
Get help from other resources on campus (writing center, academic help center, etc.)	3	7	12	9	2.87	31

Note. The mode (most frequently selected response) is in bold.

Strategies to Support College Readiness

Throughout our site visits, we heard that college readiness was not something left to chance in the early colleges. Instead, the schools engaged in a set of purposeful activities designed to develop students’ readiness for both the college courses they are taking in the early college as well as their readiness for what happens when they leave and pursue further postsecondary education. The early colleges recognized the multifaceted nature of college readiness and developed supports that prepared students to meet these goals. Because students in the early college were taking college courses at the same time as their high school classes, the high school staff had a chance to observe in real time how well they were preparing their students and were able to modify their approaches as necessary.

Table 5. College Instructors' Perceptions About Early College Students' Level of Preparedness to Take College Classes Compared With Regular College Students.

Question	Much less prepared	Less prepared	About the same	Better prepared	Mean	Total responses
<i>Academic knowledge</i>						
Understand the content of the class	0	9	18	5	2.88	32
Read college-level textbooks or articles	2	9	14	7	2.81	32
Write college-level papers	5	6	14	2	2.48	27
<i>Academic behaviors and attitudes</i>						
Take part in group projects or study groups on campus	2	5	12	9	3	28
Take part in class discussions	1	8	14	9	2.97	32
Take notes in class	1	8	14	8	2.94	31
Behave appropriately in class	2	8	13	9	2.91	32
Ask for help from you or another college professor	2	8	14	8	2.88	32
Take responsibility for their own work	2	8	15	7	2.84	32
Finish and turn in assignments on time	4	4	17	7	2.84	32
<i>Understanding college processes</i>						
Get help from other resources on campus (writing center, academic help center, etc.)	2	9	16	3	2.67	30

Note. The mode (most frequently selected response) is in bold.

In this section, we summarize the strategies and approaches that different schools were using, organizing them into our three primary categories of college readiness: (a) academic preparation, (b) academic behaviors and attitudes, and (c) understanding of college processes. In some cases, a specific strategy may have targeted one or more of these categories.

Academic Preparation. The most prevalent type of college readiness support offered by the schools was around academic preparation, particularly through high school class instruction and test preparation.

Instruction in high school classes. The high school staff believed that instruction in their high school classes needed to be more rigorous to prepare students for the

college classes they would soon be taking. All 15 of the schools we visited reported that they incorporated specific instructional practices into their high school classes so that students would be academically prepared for college. In these classes, the instructors tried to mirror the experiences the students would encounter when they begin their college courses. In some classrooms, the students experienced instruction and content similar to college; in others, the classes explicitly focused on research skills or writing.

Thinking critically was a skill staff members wanted their students to possess before they started their college courses. Ten schools indicated that they emphasized higher order thinking skills through various approaches such as using Bloom's Taxonomy to guide the level of discussion, pushing students to justify their responses or increasing the cognitive demand of the task. A teacher at Oak Early College stated,

Our students, to prepare them for college so that they can be successful in a college course. Rigor. All of our courses we are expecting students to read and write above grade level because just writing in ninth grade is not going to get you successful in course. They read and write in every class. My math class is structured where it's not solve equation one, solve equation two. It's here's a scenario. How would you write an equation? What does this mean? It's deep higher level thinking, thinking deeper about concepts.

Writing skills was also a key area of emphasis relative to academic preparation, driven at least partly by an awareness that college faculty often found students' writing skills lacking. Eight schools reported they placed an emphasis on writing, one of the reasons being that the early college students did not have 4 years of high school English before they began taking college courses. At Grayson Early College, students received comments on their articles, which they were asked to revise and resubmit.

At many of the early colleges, literacy was not just relegated to English classes, they were working on writing across the curriculum. For example, an English teacher at Maple Early College said,

Definitely the kinds of college essay that they expect working specifically toward those high stakes writing and we do that in every single classroom. That's not just in English. All of our high school classes are requiring the students to a low-stakes, a mid-stakes, and a high-stakes writing sample. And we actually do it first, second, and third 6 weeks, low, middle, high so we kind of work them up to it. . . . We're trying to teach writing across the curriculum.

Students were also aware of the importance of writing as they started taking their college courses. A student at Woodford Early College believed that the high school English class had prepared him for the writing requirements in the college courses:

Like writing here at the early college gives you a step above the other college students when you get into the English class, because you know what to expect and you've already written most of these papers that they ask you to do. . . . I mean, you already have the help and support of the high school teachers, so you know what to do, and more than likely you should end up with a better grade than most of the other students.

It is important to note that, despite the concentrated effort on writing, it was one of the areas in which faculty saw the lowest level of preparation. This suggests that writing may be something that benefits from additional years of practice and that schools may want to focus on this earlier in order to ensure that students are better prepared.

Test preparation. All 15 schools offered test preparation focused on preparation for the postsecondary placement exams they would encounter, including COMPASS, Accuplacer, SAT, and ACT. Based on the interviews, test preparation occurred during regular classroom time as well as through targeted support sessions, such as advisories or dedicated test prep classes.

Unlike many high schools, test preparation appeared to be the responsibility of all staff members, from the liaisons to the classroom teachers. This is at least partly due to the fact that students needed to pass placement exams in order to take the college-level courses that were a part of the school's curriculum. For example, the liaison for Oldham Early College stated,

Before they take the placement test, the ninth grade English teacher does some sessions with them to try to prepare them. They have several online resources that I provide for them so that they in their academic lab time here will spend some hours devoted towards preparation for the placement test but it's somewhat independent in that they are working at their own computer on that and then asking questions as they have them. The same thing for math. The tenth grade math teacher takes that responsibility of providing some support sessions for them prior to testing and then they have an opportunity to retest after a two week window has passed and so we'll know then which students need even more support and we'll design time specific for that to happen as well but we don't teach a class.

Academic Behaviors and Attitudes. All 15 schools sought to teach their students behaviors and traits that would provide them with additional skills needed for college and, in some cases, life beyond. This was a lesson learned by many of the early colleges who saw many of their students be unsuccessful in college courses without such preparation. The early colleges often had dedicated times to work on these skills. Some schools offered the AVID program, a formal curriculum that focuses on college readiness (Swanson et al., 1995). Other schools had set aside times weekly or even daily, usually called Advisories or Seminars, during which teachers worked with small groups on building college readiness skills or providing academic support. In two schools, students were also "graded" on these college readiness behaviors and traits. We discuss how they taught the different types of skills in more depth.

Organizational behaviors (time management, note taking, study skills). All 15 schools viewed time management, note taking, and study skills as qualities students should have if they wanted to be successful in a college environment. These organizational behaviors were usually taught together, not in isolation. However, some schools did

identify specific days to teach these skills; for example, at Oak Early College, they created a Campfire curriculum where Tuesday was designated for study skills and note taking.

Most schools began teaching students these behaviors during freshman year. At Rockcastle Early College, they incorporated several activities during their seminar time in order to teach planning/time management and note taking. The principal discussed some of their approaches,

. . . our Dean of Students does seminar, works with them on note taking, also; usually Cornell Notes is what we teach . . . we do have planners with them. We start them out their freshman year writing in their planners; and we start out first semester of their freshman year using what we call a green sheet, which is when they haven't turned in an assignment on time . . .

At Maple Early College, the organizational behaviors were also taught during the first year in a Freshman Academy. Because these lessons were usually embedded in a classroom setting, they were integrated with other skills like collaboration (i.e., forming study groups, collaborative group work) and goal setting.

Self-advocacy. Eleven schools discussed their efforts to teach students how to advocate for themselves and take responsibility for their learning experiences. In their interviews, college faculty noted that the primary difference between high school and college culture was that students were expected to operate more independently while in college. To prepare their students to encounter this culture shift, early college staff were clear that they wanted students to learn how to ask for help, communicate with the college instructors, and become independent, especially when they transfer to a larger college/university.

Early college staff pointed out that students were initially nervous, intimidated, and apprehensive to ask for help and then described various methods they used to teach students how to advocate for themselves. The Green Mountain Early College Liaison described a gradual process where students started with intense support and ended up being able to advocate for themselves,

. . . so we're trying to wean them. At the beginning, it's a lot of support here. And then by the time that they're finishing their junior year, that support has backed off to the point where they know the next year they're gonna not be on their own, but they've got to advocate. And we're trying to teach that advocacy from the beginning . . .

The Russell Early College counselor indicated that they began by modeling the desired behaviors and then giving students increasing responsibility for advocating for themselves. A similar point was made by the Laurel Early College principal, who stated that some students did not want to say anything if they were struggling and instead just stopped attending the class. She said that the staff asked lots of probing questions to get students to face the challenges directly.

So we've really had to push them. And actually now when they come to us we're like what have you already done? Have you done this? Have you done this? Have you done this? And if the answers are no, we're like, okay, well, then, you need to do that first, then come back and see me, and following up with them by email or in person or something like that, because it was very much they would rather avoid anything that they had to do themselves than actually shoulder that responsibility or deal with whatever the issue was.

Laurel Early College put procedures in place where students had to seek help and use all the available academic resources. Regardless of method, the schools wanted students to become increasingly responsible for themselves—more independent.

Classroom behavior. Teachers discussed the importance of students learning about college classroom behavior. A Lawson teacher stated,

College ready, I try to reference college, this is how you act in college class, you will need this for a college class. . . . So I really try to emphasize, behavior, expectations in college classes . . . I have a very strict policy about talking or not talking, . . . , texting, you know those are kinds of the rules that I have in my college class I have right here so they are ready, so it is not like this big shock.

Some teachers made changes in their high school classrooms so students would begin to understand what would be considered unacceptable behavior in college classrooms.

Two schools systematically monitored student behaviors that they perceived as signifying college readiness and gave them “grades.” Russell staff described a “habits of work” progress report and Bracken staff described a “college readiness” matrix. The Russell Early College principal described the “habits of work” as a way to communicate student’s college readiness skills beyond academics,

It’s more about work than it is about aptitude or IQ. We really do try to instill that. [And] one way we do that is we have habits of work. So on progress reports we rate habits that work separate from the grade. The grade shows where they stand in the course right now. The grade is not impacted by the habits of work . . . I think our job is to develop those skills and that if they have a good work ethic and they’re organized, they’ll probably do okay in school. They’ll probably graduate.

This principal saw their level of organization and work ethic as an indicator of college graduation. Bracken Early College staff had similar views. A Bracken teacher stated,

I have a grade in my grade book that’s called college readiness and it’s a category in my grade book. . . . It came about because we realized that there was a difference between being accountable for their work . . . I’m simply checking are you prepared for your group discussion today? Did you come prepared for class? . . . College readiness also relates to organization. I put that under college readiness and then I grade it on the degree of thoroughness. So if somebody comes in with just a sloppy job and just got it done, they’re not going to get a ten out of ten on college readiness. They’ll get a seven out of ten. They’ll get a low grade on it . . . and that’s a way to keep them accountable and also to

see how they're doing and for me to be able to evaluate how successful they're being in that regard.

Monitoring organizational behaviors and whether students are responsible are not typically part of a "normal" grading system, yet they were important to the mission of these schools. The "grades" encapsulated what the students were being taught about time management, note taking, study skills, self-advocacy, effort, responsibility, and communication.

Understanding College Processes. All 15 schools had activities that helped students develop positive attitudes toward college and understand how to navigate the college application process and the college system. More specifically, they took students on college visits, helped them with their admissions applications, helped their families with the Free Application for Federal Student Aid forms, and made concerted efforts to engage parents in the process. The counselors and college liaisons were primarily responsible for leading activities that helped students understand the steps they needed to navigate in order to get accepted into college. Principals appeared to be more involved when planning whole school activities for parents.

College visits. College visits were an integral part of the early colleges. The visits were not only about helping students gain an understanding of what it took to get to college but was part of an overall effort to introduce a college-going culture within the schools.

Unlike most traditional high schools that focus on college visits toward the end of high school, many early colleges conducted visits from 9th to 12th grade. The Rockcastle principal said,

Well, you know, we start college visits their freshman year, so by the time they finish with us, they will have visited usually about ten colleges. And because that's important, you talk about this college thing and [if] you grew up in a family [where] there's not any older brothers and sisters, you've never been on a college campus before. And [the early college campus] doesn't really count, so they need to be on a four-year college or university campus and so we try to early on get them there so they'll see what is this monster we're talking about.

Applying to college. Schools provided structured support for the college application and financial aid activities through seminars, advisories, AVID, whole school meetings with parents and/or students, and individual meetings between counselors and students.

Because these early colleges were located on college campuses, the students developed familiarity with the concept of being on a campus. Despite this, many students and their families were unfamiliar with the procedures to actually get into a college or university. Several principals, counselors, and teachers discussed the college application process as a series of actions that students needed to take in order to even apply.

In some schools, the conversation about college began before they even start high school. The Bishop counselor described how they worked with students,

We have a meeting. . . . And we did this right before school started. I give them a little handout of what you need, just the bare minimum of what you need to know about your college entrance test, applying, when you should apply, college tours, open houses, when they have the open houses. And we also meet with them twice a year in the fall semester and the spring. And right now I'm trying to get a time where I can get everybody together. And last year we made appointments. In the spring, [name] and I made appointments and we were together with the students. And I had my check off list and we kind of work it into the conversation.

Both the Bishop and Edmonton counselors emphasized the college planning process, and the importance of starting early. The Laurel principal discussed the use of their seminar as a place for students to work on their applications; the principal stated, “. . . we use that time to do the applications, to write the essays, to give them feedback, to keep them updated on deadlines.”

Schools also worked with students on an individual basis, and tried to ease the financial burden around tests and applications. The Rockcastle principal stated, “. . . the counselor works with them; they are required to apply to five to eight schools. She will get waivers for them to take the ACT, and . . . the SATs . . .”

Educating parents about the college process. Many schools described their students as first-generation college students, which influenced the types of activities they developed for their families. Seven schools described their interactions with parents around the college admissions process, including helping them understand the prerequisites for college and complete financial aid forms. Efforts to engage parents included weekly phone calls, financial aid events, parent/teacher conferences, meetings led by students, and other parent-focused nights.

The schools saw communication with parents as fundamental to getting them engaged in the college readiness process, especially the college application and financial aid forms. Schools described reaching out to parents on a consistent basis, sometimes in the form of a weekly update.

Three schools described how their parent communication efforts were often led by the students. While student-led conferences are becoming more common, Maple and Oldham staff described how their students led discussions not only about their current progress but about postsecondary education. As described by the counselor for Hancock Early College,

. . . SLICE stands for Student-Led Instructional Conference Event. . . . That means that every 9th grader, every 10th grader, and every junior has to invite their parents in. We schedule it one time each semester so when we talk college readiness, that parent comes in, sits at the table with their child. Our students have to build a portfolio in the AVID room. So they have samples in their portfolio. They have samples of their high work, good work . . . samples and some that were not so good work samples. They have a goal

sheet. They have a career piece in there. They have standardized testing if we have completed it, if they have those results. They sit with their parent and page by page and walk through that portfolio. . . . In that portfolio they have a transcript. Most of them have their college search in there where they've done those three college comparisons of how much it costs, do they have a major that I want, and how far away is it from home or something like that, whatever their form is . . .

This appeared to be a unique way of engaging parents in the college readiness discussion. Students were not only leading a "typical" parent/teacher conference but explaining their goals and the research they had done on postsecondary education.

The task of introducing and preparing students for the entrance requirements and navigation of college appeared to fall on all staff members, but in particular counselors and liaisons. It also involved the inclusion of parents because of their critical role in understanding what it takes to get to college.

Conclusion

The results of this study show that early colleges were successful at increasing the college readiness of their students according to key outcome measures. College faculty also believed that the early college students were generally prepared for college, even though they may have been younger and had fewer life experiences than traditional college students. This article also presents a variety of strategies that early colleges used to prepare students for postsecondary education. What lessons can secondary school principals take from these findings, even if they do not operate a small, college-focused school?

First, the early college data support the concept that college readiness is complex and multifaceted. It includes academic preparation in content knowledge and skills such as writing and research. It also includes academic attitudes and behaviors such as self-advocacy and study skills. Finally, it includes awareness of college logistics. This suggests that principals wishing to prepare their students well for postsecondary education should recognize the myriad of different skills that students need to take with them. It is important to note that these skills are not just useful for further postsecondary education but are useful for students while they are still in high school. A student who is prepared for college will certainly be prepared for success in high school as well.

Second, early colleges not only recognized these varying aspects of college readiness, they also explicitly and purposeful prepared students using a variety of strategies. These schools have tried to support students' college readiness not only by building their content knowledge, cognitive skills, and literacy skills but also by instilling academic behavior, teaching students the college process, helping students take ownership of their learning, and supporting them in the formation of life goals. They used a variety of college readiness strategies in a range of settings from their high school courses, to seminars, to AVID classes, and tutoring sessions to help students gain the skills needed to take college courses and pass them. For many of these

schools, college readiness was also about changing their students' life view; encouraging students to see themselves in college and doing something they may never have thought they could do.

Secondary school principals can learn from the purposeful focus and explicit instruction of the early colleges. Staff in many high schools assume that students will learn skills such as time management or study skills or self-advocacy on their own or from their parents. While this may be the case for some students, it will not be the case for students who come from homes with no experience in postsecondary education. As a result, secondary principals will want to think about appropriate ways to embed explicit college readiness preparation into their school, through classroom instruction or through targeted support sessions.

Some principals may believe that early colleges are too different to have any lessons to share with comprehensive high schools. While early colleges are often seen as specialized schools, many of these strategies can be implemented in comprehensive high schools. In fact, there are extensive efforts supported by federal grants to implement early college strategies in comprehensive high schools across the country (Edmunds et al., 2016; Hooker, 2017). One high minority, low-income district in the Rio Grande Valley of Texas, Pharr-San Juan-Alamo, in particular, has spent the past 10 years seeking to create an early college environment for all of its students (Vargas, 2014). Lessons learned from these and other efforts will be useful for secondary school principals looking to prepare their students for life in the 21st century.

Authors' Note

The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grants R305R060022, R305A110085, and R305A140361 to the University of North Carolina at Greensboro.

Note

1. All names are pseudonyms.

References

- Achieve. (2004). *Ready or not? Creating a high school diploma that counts*. Retrieved from <https://www.achieve.org/files/ReadyorNot.pdf>
- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education.

- Adelman, C., Daniel, B., & Berkovits, I. (2003). *Postsecondary attainment, attendance, curriculum, and performance: Selected results from the NELS:88/2000 Postsecondary Education Transcript Study*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Allen, D., & Dadgar, M. (2012). Does dual enrollment increase students' success in college? Evidence from a quasi-experimental analysis of dual enrollment in New York City. *New Directions for Higher Education*, 158, 11-19.
- An, B. P. (2013). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation and Policy Analysis*, 35, 57-75.
- An, B. P., & Taylor, J. L. (2015). Are dual enrollment students college ready? Evidence from the Wabash National Study of Liberal Arts Education. *Education Policy Analysis Archives*, 23(58), 1-26.
- Arshavsky, N., Lewis, K. C., Thrift, B., & Edmunds, J. A. (2016, April). *A perspective on college readiness from schools where most students take college courses*. Paper presented at the American Educational Research Association, Washington, DC.
- Balfanz, R., McPartland, J., & Shaw, A. (2002). *Reconceptualizing extra help for high school students in a high standards era*. Baltimore, MD: Center for Social Organization of Schools, Johns Hopkins University.
- Bettinger, E. B., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2009). *The role of simplification and information in college decisions: Results from the H&R Block FAFSA experiment*. Cambridge, MA: National Bureau of Economic Research.
- Bozick, R., & DeLuca, S. (2011). Not making the transition to college: School, work and opportunities in the lives of American youth. *Social Science Research*, 40, 1249-1262.
- Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018*. Washington, DC: Georgetown University Center on Education and the Workforce.
- Castleman, B. L., Owen, L., & Page, L. C. (2015). Stay late or start early? Experimental evidence on the benefits of college matriculation support from high school versus colleges. *Economics of Education Review*, 47, 168-179.
- Conley, D. T. (2005). *College knowledge: What it really takes for students to succeed and what we can do to get them ready*. San Francisco, CA: Jossey-Bass.
- Conley, D. T. (2008). Rethinking college readiness. *New Directions for Higher Education*, 144, 3-13.
- Conley, D. T. (2011). *Redefining college readiness*. Eugene, OR: Educational Policy Improvement Center.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209-240). Thousand Oaks, CA: Sage.
- Edmunds, J. A. (2012). Early colleges: Redesigning high schools for college readiness. *New Directions for Higher Education*, 158, 81-90.
- Edmunds, J. A., & McColskey, W. (2007). *Levers for change: Southeast region state initiatives to improve high schools* (Issues & Answers Report, REL 2007-No. 024). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast.
- Edmunds, J. A., Unlu, F., Glennie, E., Bernstein, L., Fesler, L., Furey, J., & Nina, A. (2017). Smoothing the transition to postsecondary education: The impact of the early college model. *Journal of Research on Educational Effectiveness*, 10, 297-325.
- Edmunds, J. A., Unlu, F., Glennie, E., Furey, J., Henson, R., Naumenko, O., Hutchins, B. C., Sheffield, L., & Grebing, E. (2016, April). *Moving from the "boutique" to the "broad"*:

- Scaling up early college efforts in different settings*. Paper presented at the American Educational Research Association, Washington, DC.
- Finkelstein, N. D., & Fong, A. B. (2008). *Course-taking patterns and preparation for postsecondary education in California's public university systems among minority youth* (Issues & Answers Report, REL 2008–No. 035). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory West.
- Hooker, S. (2017). *Leadership lessons from the Early College Expansion Partnership*. Boston, MA: Jobs for the Future.
- Iatarola, P., Conger, D., & Long, M. C. (2011). Determinants of high schools' advanced course offerings. *Educational Evaluation and Policy Analysis*, 33, 340-359.
- Institute of Education Sciences. (2005). *Key items to get right when conducting a randomized controlled trial in education*. Retrieved from <http://coalition4evidence.org/wp-content/uploads/2012/05/Guide-Key-items-to-Get-Right-RCT.pdf>
- Kamil, M. L., Borman, G. D., Dole, J., Kral, C. C., Salinger, T., & Torgeson, J. (2008). *Improving adolescent literacy: Effective classroom and intervention practices*. Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Lee, V. E., & Smith, J. B. (1999). Social support and achievement for young adolescents in Chicago: The role of school academic press. *American Educational Research Journal*, 36, 907-945.
- North Carolina New Schools. (2013). *North Carolina New Schools design principles*. Retrieved from https://www.duplinschools.net/site/handlers/filedownload.ashx?moduleinstanceid=3899&dataid=16409&FileName=DesignPrinciples_August2013.pdf
- Roderick, M., Nagaoka, J., Coca, V., & Moeller, E. (2008). *From high school to the future: Potholes on the road to college*. Chicago, IL: Consortium on Chicago School Research.
- Slavin, R. E., Cheung, A., Groff, C., & Lake, C. (2008). Effective reading programs for middle and high schools: A best-evidence synthesis. *Reading Research Quarterly*, 43, 290-322.
- Speroni, C. (2011). *Determinants of students' success: The role of advanced placement and dual enrollment programs*. New York, NY: National Center for Postsecondary Research.
- Swanson, M. C., Mehan, H., & Hubbard, L. (1995). The AVID classroom: Academic and social support for low-achieving students. In J. Oakes & H. Quartz (Eds.), *Creating new educational communities, Part I* (94th Yearbook of the National Society for the Study of Education, pp. 53-69). Chicago, IL: University of Chicago Press.
- Tierney, W. G., Bailey, T., Constantine, J., Finkelstein, N., & Hurd, N. F. (2009). *Helping students navigate the path to college: What high schools can do: A practice guide* (NCEE #2009-4066). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Vargas, J. (2014). *Sharing responsibility for college success: A model partnership moves students to diplomas and degrees*. Boston, MA: Jobs for the Future.

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