Remediation and Developmental Education Never Were a Barrier: Recent Data Confirm Community College Remedial-Nonremedial Graduation Rates are Identical

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Hello NDEC Members!

- I hope you are all safe and healthy
- CommunityCollegeData.com (see the Resources page for PDF of this PPT with links to sources); Twitter: @2yrcollegedata
- As educators, please remember that you serve a very important role in society that is often unrecognized
- Keep up your crucial work even if it seems too difficult! This presentation may help you in this endeavor

- To be clear, I support reforms in remediation and developmental education (e.g., multiple "mixed" measures for placement, acceleration options, corequisites for students just beneath college-level cutoff, etc.)
- However, I also support the inclusion of traditional stand-alone remediation and developmental coursework as an option for students at institutions and state systems; the data in this presentation show why
- Holistic reform addressing income that includes developmental coursework is the best approach

- The problem is that for over a decade, remediation and developmental education have been mischaracterized as a barrier (Goudas, 2016)₁; this claim has been repeated so frequently it has become an unquestioned assumption, a narrative in the field that is actually false
- To clarify my use of terminology:
 - **remediation**: coursework, typically in English or mathematics, designed to assist students in preparing for college-level courses
 - developmental education: a system of supports, including remediation, based on the principles of adult learning

- The problem with the barrier claim is that policymakers are using it to eliminate or severely restrict remediation in institutions and state systems across the nation
- In this presentation, I discuss past and present data on remedial outcomes, esp. graduation rates, so that policymakers might reconsider these decisions
- For many students, prerequisite stand-alone remedial courses have been and currently are beneficial; therefore, *they should still be offered as an option*

The barrier claim is often accompanied by phrases similar to this quote by Community College Research Center (CCRC) researchers Jaggars and Stacey (2014)₂:

"Only 28 percent of community college students who take a developmental education course go on to earn a degree within eight years, and many students assigned to developmental courses drop out before completing their sequence and enrolling in college-level courses" (p. 1).

One problem with this claim and the data used to support it is that it reports raw numbers only. Also, it is from an outdated 1988 dataset (NELS:88). This quote in an endnote in Jaggars and Stacey (2014)₂ provides some more context:

"4. Based on calculations using the National Educational Longitudinal Study (NELS:88). The comparison figure for nonremedial students is 43 percent (Attewell, Lavin, Domina, & Levey, 2006)" (p. 6).

Third, if one actually reads Attewell et al. (2006)₃, the authors added even more context to the numbers:

"The NELS:88 shows that 28% of remedial students in two-year colleges graduate within 8.5 years (compared to 43% of nonremedial students).... Our analyses were able to distinguish the effects of a poor high school academic preparation from the effects of taking remedial coursework in college, and we found that most of the gap in graduation rates has little to do with taking remedial classes in college. Instead, that gap reflects preexisting skill differences carried over from high school. In two-year colleges, we found that taking remedial classes was not associated at all with lower chances of academic success, even for students who took three or more remedial courses [emphasis added]" (p. 915).

- Attewell et al. (2006)₃ reported raw numbers first and then controlled for variables to arrive at a conclusion that is the opposite of what CCRC's Jaggars and Stacey (2014)₂ claimed using numbers from that same report
- Raw numbers were taken out of context and were used to support the claim or narrative that remediation is a barrier
- This suggests a type of bias in the selection of data used to support the false narrative that remediation is a barrier

Another source that is cited extremely frequently is CCRC researchers Bailey et al. (2009, 2010)_{4,5} (1,650+ citations on Google Scholar as of today):

"Students arriving with weak academic skills can face semesters of work before they can in effect start college—at least in relevant areas. This developmental 'obstacle course' presents students with many opportunities to step out of their sequences, and students in large numbers take those opportunities [emphasis added]....As it stands now, developmental education sequences must appear confusing, intimidating, and boring to many students entering community colleges [emphasis added]" (pp. 26–28).

- Bailey et al. (2009, 2010)_{4,5} used a nonrepresentative sample of community college students from Achieving the Dream (ATD) colleges from about 2004–2006
- The authors acknowledged this, so they stated they used the NELS:88 data to check their results; however, NELS data did not code remediation, so they imputed this data (p. 29) (Attewell et al., 2006 did not impute data but were required to exclude nontraditional [i.e., age] student data, which makes it flawed as well)
- Bailey et al. (2009)₄ tracked students for only 3 years (p. 6)

- Therefore, many claims of remediation as a barrier are founded on research conducted on an outdated dataset (NELS:88), imputed data from NELS:88, an uncontexutalized use of raw data from NELS:88, and an analysis of only 3 years of nonrepresentative data (ATD)
- These issues alone should call the barrier claim into question
- However, even without controls, raw data from more recent datasets show that remediation is not a barrier, especially for 2year associate's degree and certificate attainment

"Remedial Coursetaking" (Chen, 2016)6,7



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- Chen (2016)_{6,7} used the NCES Beginning Postsecondary Students Longitudinal Study (BPS:04/09) dataset
- The BPS:04/09 is a nationally representative dataset of cohorts of college students; therefore, contrary to Bailey et al. (2009, 2010)_{4,5}, findings can be generalized to the overall population
- Results for students who started at community colleges showed that remediation is not a barrier, especially in terms of associate's degrees and certificates (next table is addendum; see reference)₇

BPS:04/09 Data (from Chen, 2016),

Table 180302. Among 2003–04 beginning postsecondary students who first enrolled in public 2year institutions, percentage distribution of students according to their postsecondary persistence and highest degree attainment as of 2009, by remedial course enrollment and completion status: 2003-09

	6-year persistence and degree attainment				
Remedial course enrollment and completion status	No degree, and not enrolled	No degree, but enrolled	Attained an associate's degree or certificate	Attained a bachelor's degree	
Total	45.2	20.2	22.9	11.8	
Enrolled in any remedial courses	44.3	23.1	22.3	10.4	
Enrolled in remedial courses and passed all	35.3	22.1	25.8	16.8	
Enrolled in remedial courses and passed some	46.7	27.0	22.2	4.2	
Enrolled in remedial courses and passed none	66.8	17.5	11.6	4.2	
Did not enroll in remedial courses	47.0	14.1	24.1	14.8	

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- As shown on the prior slide, Table 180302 (NCES, n.d.), from Chen (2016), shows that associate's degree attainment for students in remediation (22.3%) is nearly identical to nonremedial students (24.1%)
- Approximately 2/3rds of students in the sample took a remedial course (p. 10); data in above table were not controlled (if they were, difference would disappear or be reversed)
- Therefore, a nationally representative 2003 dataset showed that remediation is not a barrier (similar time frame as Bailey et al., 2010)

- Since the BPS:04/09, another more recent nationally representative dataset using the same methodology has been created, analyzed, and disseminated by the NCES (there are four total BPS datasets)
- This new dataset is the BPS:12/17, and it uses cohorts of students who started in fall of 2011 and who were also tracked for 6 years
- Data in the next two tables also show that remediation is not a barrier (yellow highlights added)
- Note, these data are from 2011–2017, just before recent reform movement efforts to eliminate or reduce developmental courses

BPS:12/17 Data (Pretlow et al., 2020)⁸

National Center for Education Statistics

 Table 2.2-C.
 Among 2011–12 first-time postsecondary students who began in an associate's degree program, percentage distribution of 6-year attainment and persistence status at any institution, by selected beginning enrollment characteristics: 2012–17

Selected beginning enrollment characteristics	Undergraduate certificate	Associate's degree	Bachelor's degree	Enrolled at 4-year institution	Enrolled at less-than- 4-year institution	Not enrolled
Total	5.8	21.3	12.4	6.2	8.6	45.7
Strongly agree knew requirements needed to complete degree at first institution, 2011–12 ¹						
Yes	5.5	23.4	13.7	6.7	8.1	42.5
No	5.9	21.2	12.0	6.1	8.7	46.0
Strongly agree that I feel that I am a part of my first institution, 2011–12 ²						
Yes	7.0	27.0	11.6	5.7	8.4	40.4
No	5.3	20.6	14.0	6.7	8.1	45.2
Strongly agree have ability to succeed as a student at first institution, 2011–12 ²						
Yes	6.0	25.6	15.8	6.5	8.1	38.1
No	5.8	19.2	8.8	6.2	8.5	51.5
Self-reported remedial or developmental coursetaking, 2011–12						
Yes	6.6	21.0	11.0	6.3	9.9	45.3
No	5.4	21.5	13.1	6.1	8.0	45.9

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BPS:12/17 Data (Chen et al., 2020),

First degree program ¹ and selected coursetaking experiences	No credential, not currently enrolled	No credential, currently enrolled at less-than- 4-year institution	No credential, currently enrolled at 4-year institution	Attained an under- graduate certificate	Attained an associate's degree	Attained a bachelor's degree
Total	39.9	4.2	5.9	6.4	9.1	34.5
Undergraduate certificate program	39.1	3.7 !	\$	53.7	2.0 !	+
Took any remedial courses ²						
Yes	46.7	12.1 !	+	32.1	4.7 1	+
No	36.4	1.0	0.3	60.9	1.2 !	+
Withdrew from any courses						
Yes	61.9	8.0 !	+	23.1	2.7 !	+
No	30.1	+	0.2	65.6	1.8 !	+
Received any noncourse credits ³						
Yes	+	+	+	39.1	+	+
No	39.0	3.7 1	+	54.2	1.8	+
Associate's degree program	55.6	5.9	5.7	4.8	17.4	10.6
Took any remedial courses ²						
Yes	57.4	7.8	5.0	4.9	17.1	7.8
No	52.5	2.8	6.9	4.6	17.8	15.5
Withdrew from any courses						
Yes	59.2	7.3	6.2	3.7	15.1	8.6
No	49.8	3.8	4.9	6.5	21.1	13.9

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 As I have discussed before (Goudas, 2017)₁₀, data on remediation presents a causation-correlation problem that, in addition to biases in data selection, makes it *appear* that remediation is a barrier; however, the problem is not remediation or developmental education per se:

If remediation is a barrier,

then all courses and semesters pose similar barriers

 CCRC has acknowledged that other first-year, first-semester courses at community colleges pose equal barriers to positive outcomes for students

CCRC researchers Zeidenberg et al. (2012)¹¹ have demonstrated that other courses pose equal barriers to student success:

"Our findings indicate that despite the focus on college math and English, these courses are not the only obstacles to completion for community college students. In fact, they present no greater obstacle to completion than the other gatekeeper courses that are identified in this paper" (p. 4).

Yeado et al. (2014)₁₂

Table 6: Success Rates in the First Three Mathematics Courses at the University of Alabama Over Time

	Math 005	Math 100	Math 110
Fall 2005	64.2%	67.2%	66%
Fall 2006	73.6%	73.8%	70.3%
Fall 2007	74%	75.2%	74.8%
Fall 2008	67.8%	78.1%	65.5%
Fall 2009	67.2%	70.5%	77.7%
Fall 2010	64%	72.2%	73.3%
Fall 2011	66.7%	65.3%	72.7%
Fall 2012	84.6%	65.1%	80.1%

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Past studies have found positive results for remediation (Goudas, 2016, 2017)_{1,10}. Other peer-reviewed studies using statistical controls also have also concluded that remediation is not a barrier:

Cabrera et al. (2005)₁₃: "Those taking math remediation courses were 4% more likely to transfer than those who did not.... However, among Lowest-SES students, the effect of taking remedial reading is particularly noteworthy. For this group taking remedial reading actually increases their likelihood of transferring by 24%" (p. 23).

Fike and Fike (2008)₁₄: "Students who did not enroll in developmental mathematics had lower odds of retention than those who enrolled in developmental mathematics but did not successfully complete the course. This finding suggests the significant role that developmental mathematics plays in student retention" (p. 78).

Lesik (2006)₁₅: "Using the regression-discontinuity design and an instrumental variables strategy to model selection bias, I concluded that participating in a developmental mathematics program significantly increases the odds of successfully completing a college-level mathematics course on the first try" (p. 17).

Turk (2019)₁₆: "When two groups of statistically similar students were compared, developmental education generally improved the chances of earning an associate degree" (p. 1090).

Saw (2019)₁₇: "For 2-year college students, remediation enrollment in both mathematics and English improved the likelihood of transferring to a 4-year college and earning a bachelor's degree" (p. 298).

Sanabria et al. (2020)₁₈: "Taking remediation is associated with a nearly nine percentage-point increase in bachelor's degree completion for 2-year college students after accounting for demographic, familial, and academic background characteristics" (p. 474).

- The primary causes of low completion rates (first-year success, graduation, transfer, etc.) is not any particular set of one or two college courses, remedial or nonremedial
- Factors such as income, work, family obligations, children, daycare, transportation, race, age, parental education level, high school courses taken (HS quality), college choice, support levels in college, tutoring, disability status, mental health levels—all of these combined and more have a far larger impact on outcomes for at-risk 2-year college students

- The most effective reform, the City University of New York's Accelerated Study in Associate Programs (ASAP), addresses all of these issues yet does not eliminate remediation
- The original model more than doubled graduation rates (21% vs. 48% for developmental students) and was an RCT comprised of 90% students of color (CUNY, 2021, p. 1)¹⁹
- Miller et al. (2020)₂₀ studied a replication of ASAP in Ohio and found that this model of true holistic *developmental education* caused a 3year graduation rate increase of 12 percentage points (49 vs. 37%) (p. 48) at a cost of \$1,840 per student per year (p. ES-7)
- These studies included required developmental coursework first

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 Aside from successful holistic developmental education reforms such as ASAP, both BPS:04/09 and 12/17 datasets confirm stand-alone remediation has been effective for decades:

Students in remediation and developmental education graduated from 2-year colleges with certificates and associate's degrees at the same rates as nonremedial students (notably, remedial completers, 49% of sample, graduated at a higher rate than nonremedial students)

• BPS:12/17 data were collected prior to popular nationwide reforms (e.g., corequisites, multiple measures, guided/math pathways), proponents of which have argued that remediation is a barrier and that these reforms would increase graduation; these reforms do not achieve this

- A reasonable policymaker should conclude that traditional standalone remediation should be retained as options for students
- I encourage policymakers to implement reforms such as welldesigned corequisites (just beneath the college-level cutoff), thoughtful multiple measures for placement reforms (actual mixed measures with more advisors), appropriate accelerated options, etc.
- However, the preponderance of data shows:

Remediation and developmental education have always been effective for helping at-risk students; therefore, it should not be eliminated or severely restricted

Thank you!

Keep up the good work in the field!

References below and more reading available: communitycollegedata.com alexmgoudas (at) gmail (dot) com

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(See below for references with links)

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