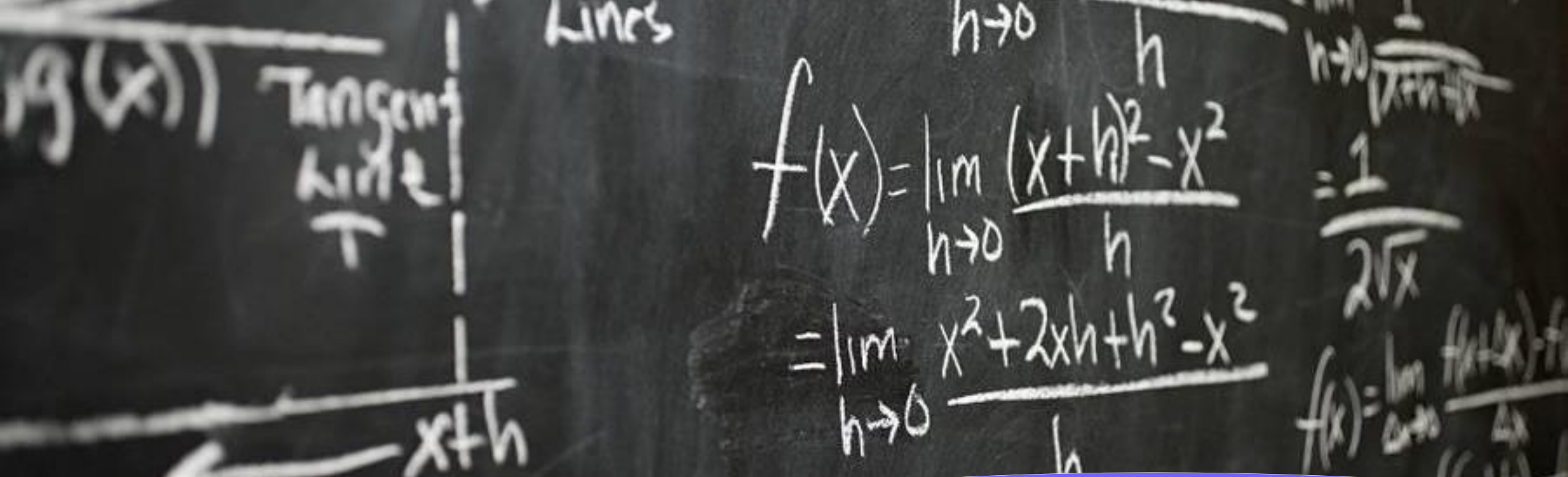


The Overlooked Factors in Critiques Directed at Developmental Education and Remediation

by Mike Cagley

2/21/2025

Structure of the presentation

The remediation problem

Federal mathematics remediation reforms

Iowa mathematics remediation reforms

The patchwork problem

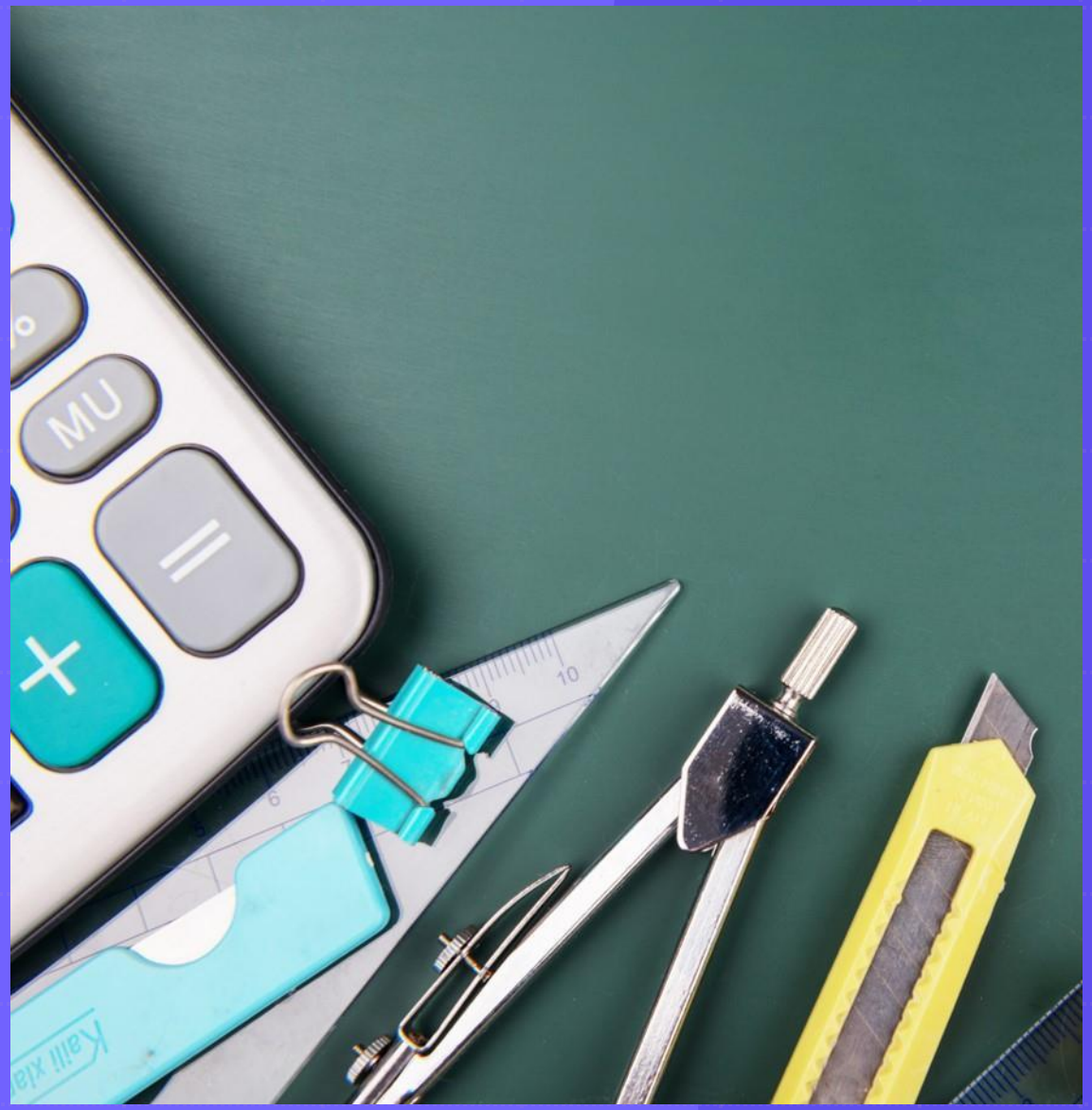
WITCC math remediation

Credit course compared to ALEKS

Digging a little deeper: Technology literacy

Continuation of the study

The remediation “problem”



The shift away from developmental education

By the 2010s, developmental education in higher education became the target of reforms to eliminate delays in students' accumulating college-level credits.

Developmental education, hereafter referred to as remediation, has nearly disappeared from colleges and universities formally due to reforms issued by the United States Department of Education (USDOE) in 2017.

Remediation still continues, but colleges and universities have either rebranded remediation (e.g., Transitional Education Department at Western Iowa Tech Community College) or eliminated formal remediation departments altogether.

Even with rebranding, the remediation departments are quite different from prior developmental education departments due to the reduction of formal non-credit course sequences.

Federal mathematics remediation reforms

Multiple Measures	Secondary Education Collaboration	Less Time in Remediation for Students	More Corequisites and Fewer Prerequisities	Comprehensive Sustainable Student Supports
• assess the students in more holistic ways, with the intent of tapping into metrics that can signal college-level readiness for credit courses	• build strong partnerships with local secondary education systems to facilitate critical early assessment	• shorten the time spent in remediation without undermining the curriculum itself	• replace prerequisites with corequisities and limit the use of prerequisite remediation courses altogether	• implement programs for holistic supports, encompassing supports beyond solely the academic, with long-term sustainability (i.e., as perma-fixtures of the institution)

Source: United States Department of Education (2017)

Iowa mathematics remediation reforms

Developmental Education Working Group

Iowa Department of Education (2018)

1) a statewide collaborative effort supported by the Iowa Association of Community College Presidents

- create a statewide Student Success Center to support all community college efforts

2) the use of multiple measures in placement for remediation (***recommendation 1 USDOE***)

- strengthen relationships and build partnerships with high schools to facilitate early assessment (***recommendation 2 USDOE***)

3) robust, sustainable student supports across advising, academics, and student life in general (***recommendation 5 USDOE***)

4) accelerated or integrated courses to reduce the time spent in remediation (***recommendations 3 and 4 USDOE***)

- provide greater professional development and faculty development opportunities for educators in remediation

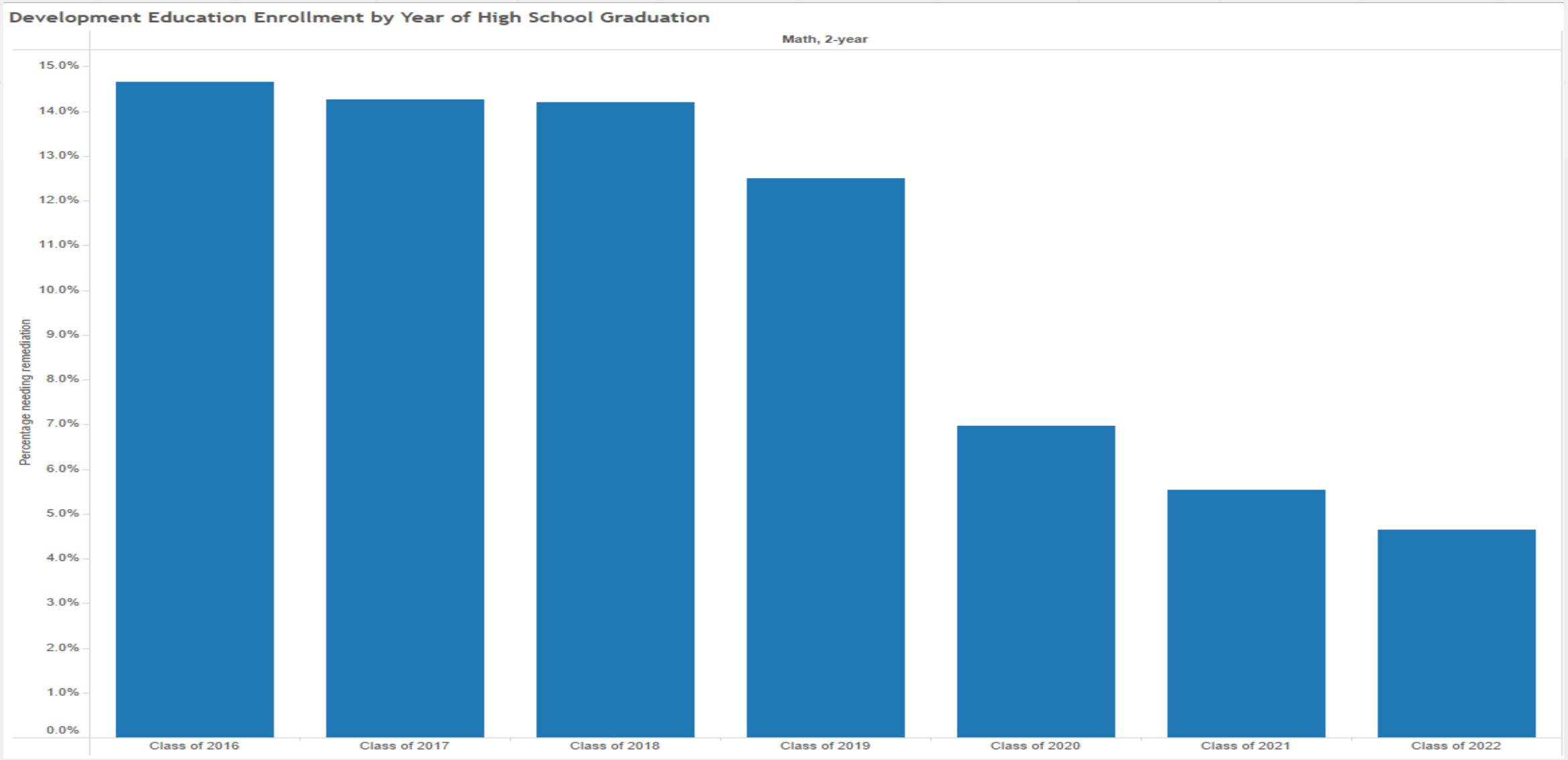
The patchwork problem

Iowa Department of Education (IDOE)

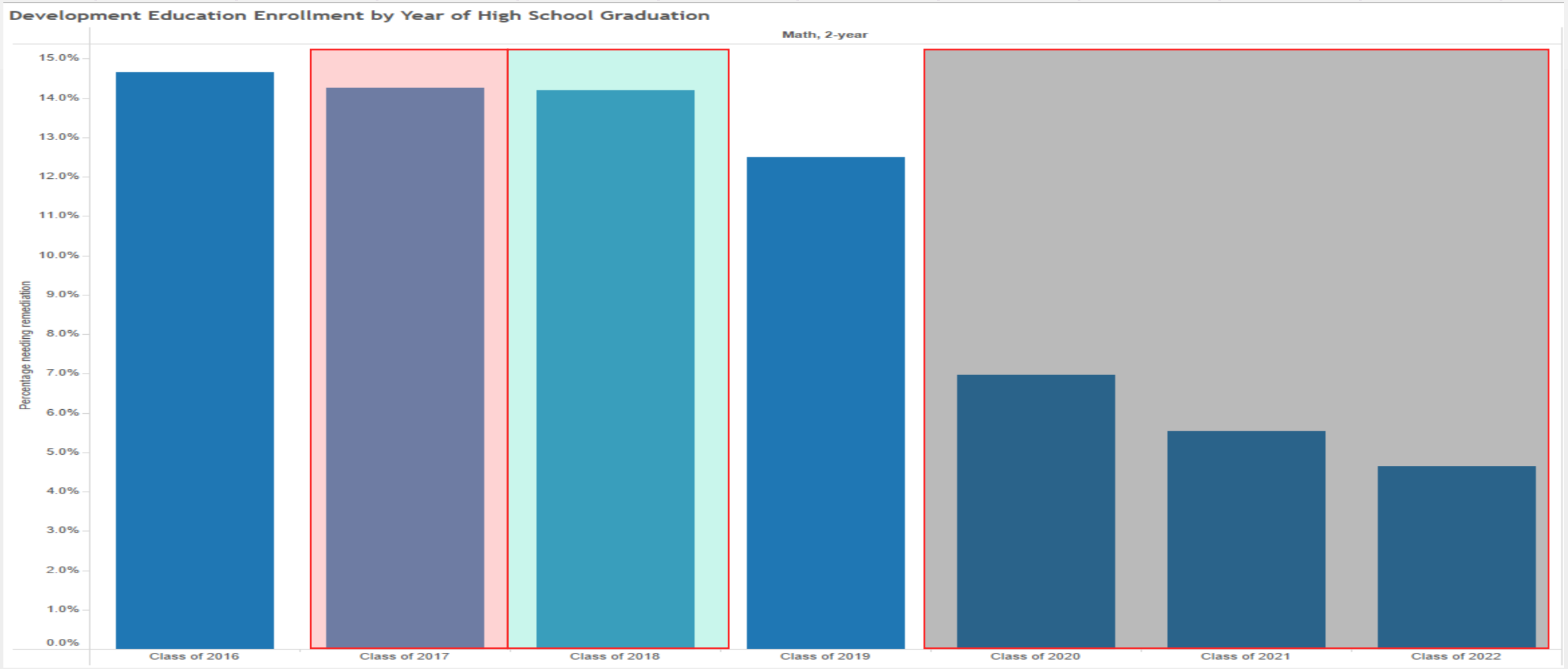
Developmental education in Iowa community colleges annual report: 2021 (p. 26)

College	Developmental Education Reforms				
	Multiple Measures ***R1 USDOE***	Level of Math Dev. Ed. Offered ***R3 USDOE***	Mandatory (M) or Recommended (R) Placement	Partnership with High School ***R2 USDOE***	Corequisite Courses Offered ***R4 USDOE***
NICC	Yes	2	M	Yes	No
NIACC	Yes	4	R	No	Yes
ILCC	No	1	M	No	No
NWCC	Yes	0	M	No	Yes
ICCC	No	4	M	Yes	No
IVCCD	In development	3	M	Yes	No
HCC	Yes	3	M	Yes	No
EICC	Yes	2	M	Yes	Yes
KCC	No	3	M	Yes	Yes
DMACC	Yes	3	M	Yes	No
WITCC	Yes	0	R	Yes	No
IWCC	Yes	1	R	No	Yes
SWCC	Yes	4	R	No	Yes
IHCC	Yes	2	R	Yes	Yes
SCC	In development	3	M	No	No

Source: IDOE (2023)



Source: IDOE (2023)



USDOE issues dev ed reforms

IDOE issues dev ed reforms

COVID

WITCC math remediation reforms

Shift to ALEKS-only with academic supports

Data from most recent Iowa Department of Education 2023 report (https://www.legis.iowa.gov/docs/publications/DF/1456357.pdf)

- State of Iowa community college graduation rate for potential transfer students: 42%
- Percentage of students who graduated who also transferred: 39%
- Percentage of students who did not graduate who also transferred: 18%
- Total percentage of potential transfer students who transferred, regardless of graduation status: 27%

Data from WITCC, 2023-2024

- WITCC graduation rate for potential transfer students: 29%
- Percentage of WITCC students who graduated who also transferred: 32%
- Percentage of students who did not graduate who also transferred: 42%
- Total percentage of potential transfer students who transferred, regardless of graduation status: 39%

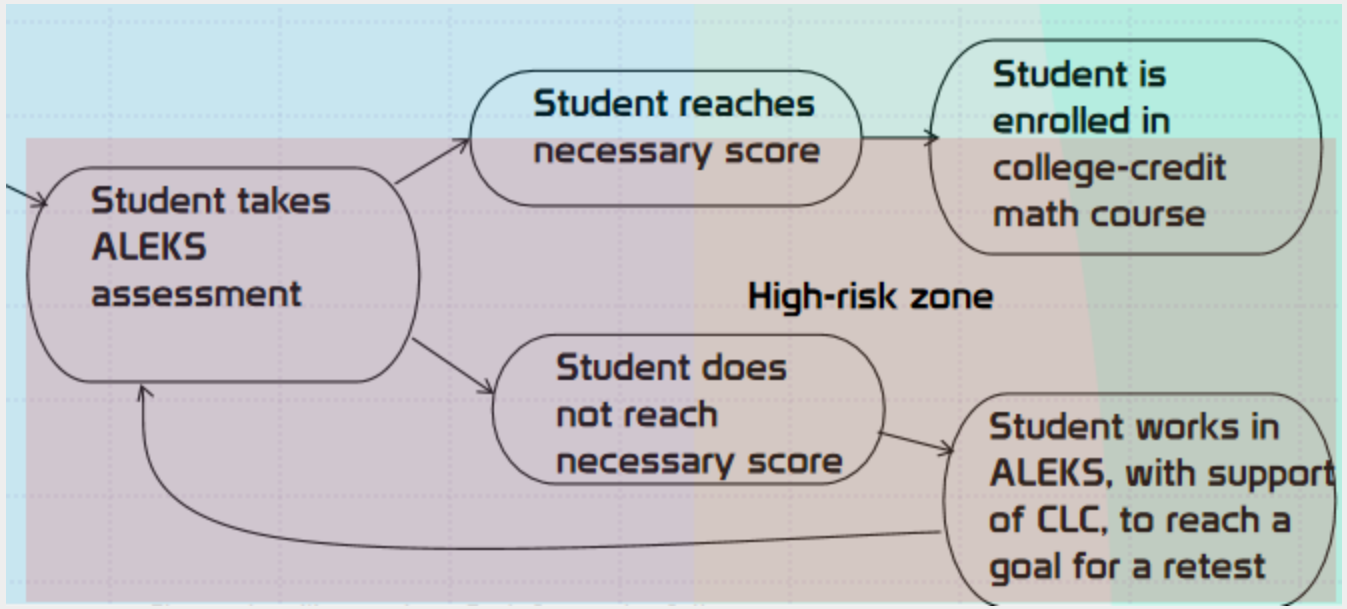
Note that “transfer” above refers to transfer to 4-year institutions

The most significant change: the percentage of students exiting WITCC without college-level math credits has dramatically increased, from 60% to 70% or greater

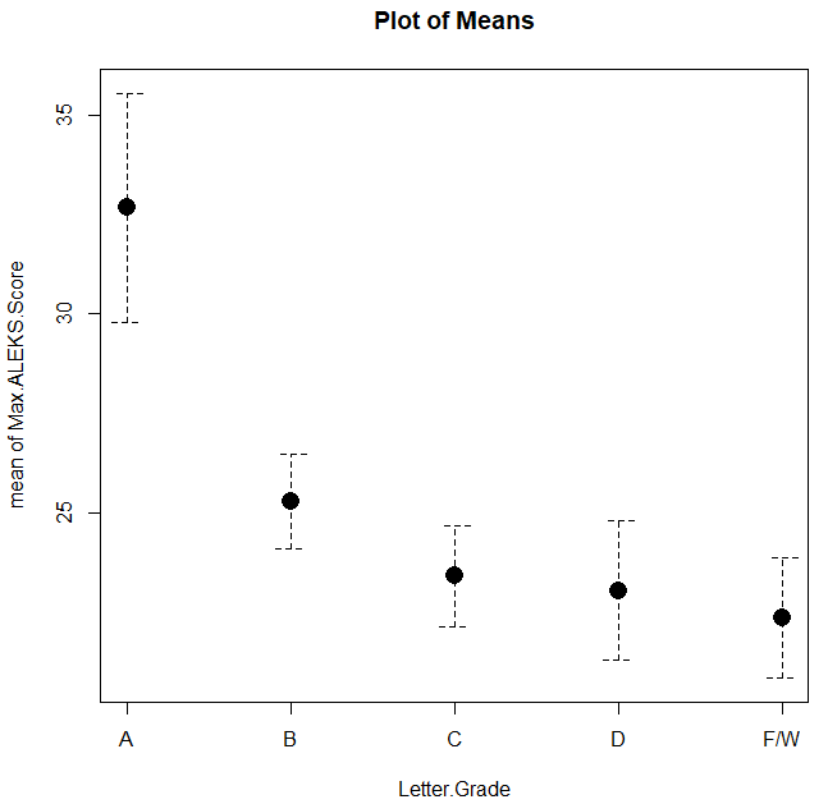
Institutional challenges

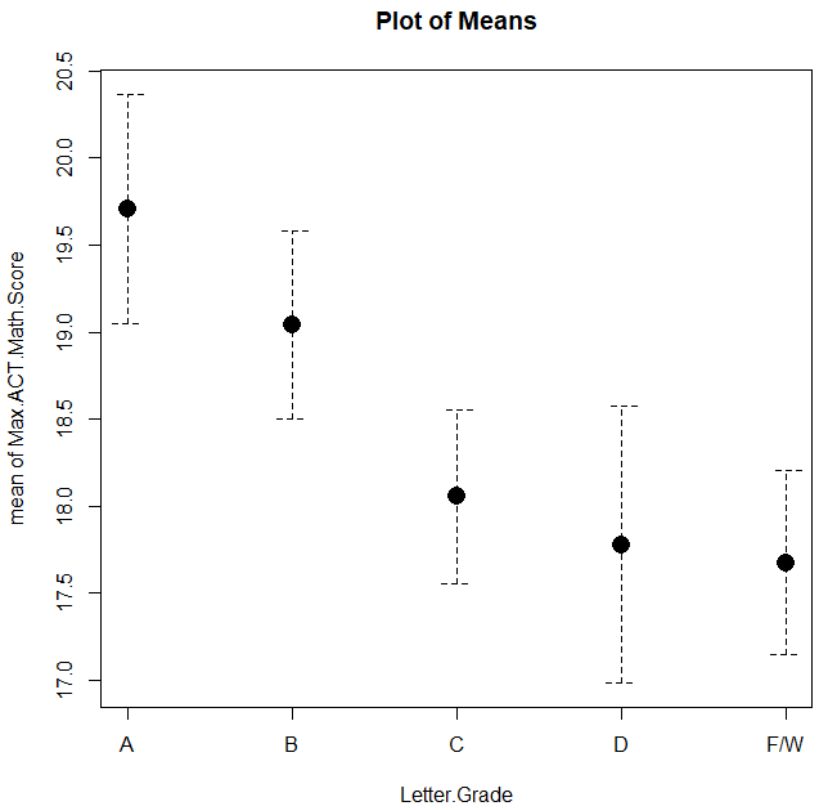
Students prolong remediation until near transfer to 4-year institution

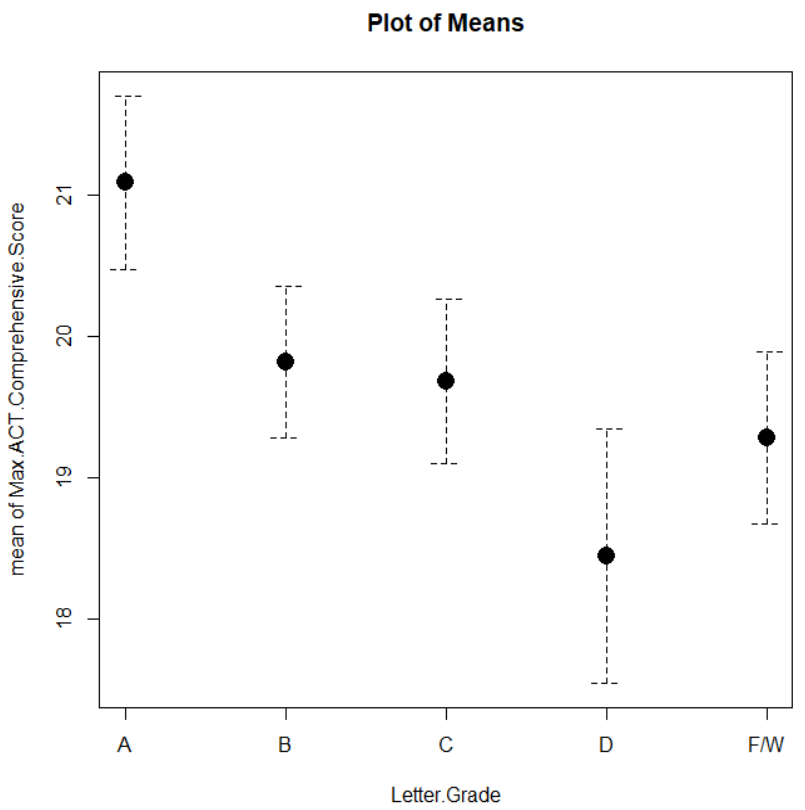
Students with high remediation needs who prolong remediation may end up in high-risk zone iterations requiring at least one semester



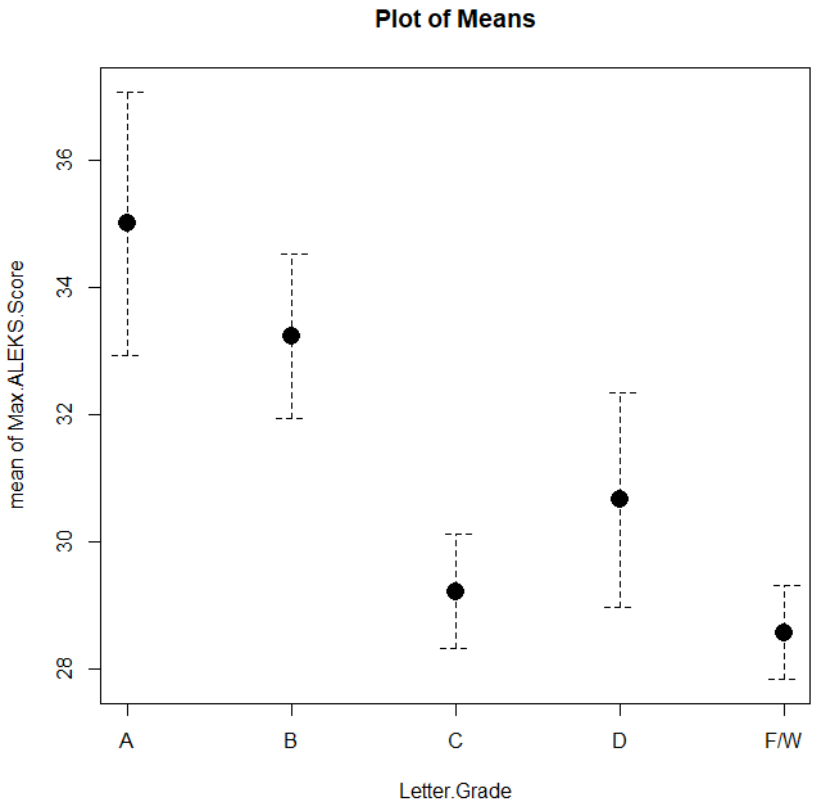
MAT-111, 19/FA to 24/SU (N=420)

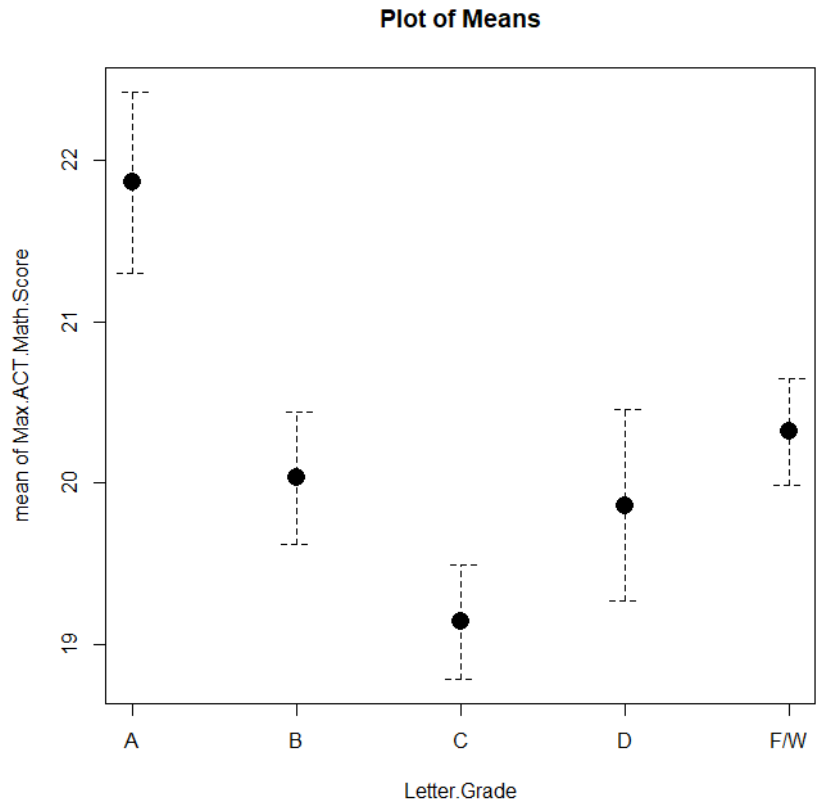


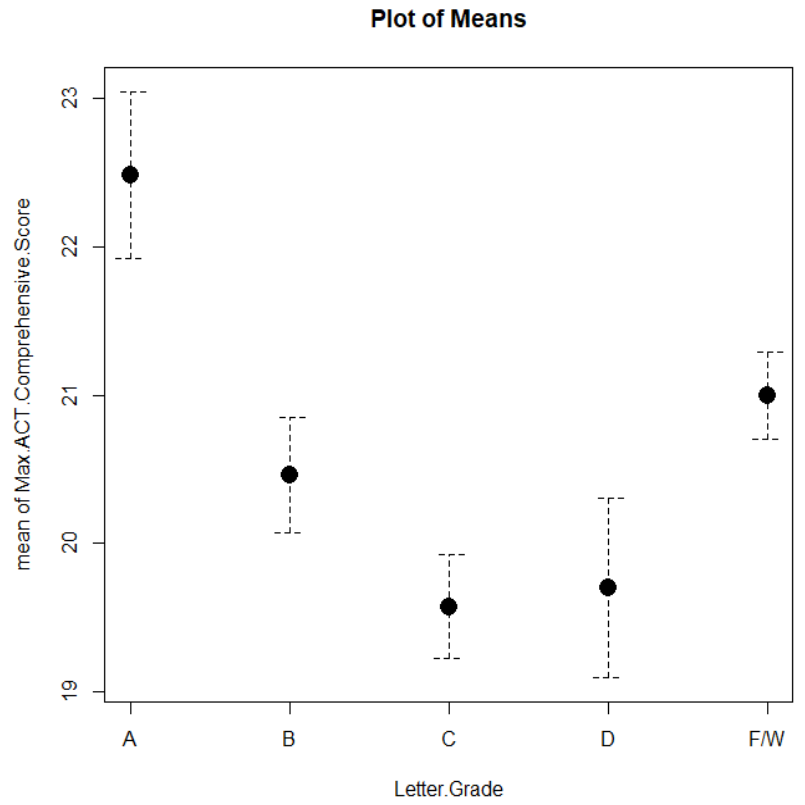




MAT-121, 19/FA to 24/SU (N=796)







Bickerstaff et al., (2022, p. 6)

TABLE 1. Rigorous Studies of Developmental Education Interventions With Positive Impacts on Student Success

Name of Intervention (Related Principles)	Study: Description of Study	Impacts on Student Success
AMP-UP: Accelerated Mathematics Sequence (1)	Douglas, McKay, & Edwards (2020): RCT at one New Jersey community college (Bergen) of a 7.5-week, intensive developmental math course followed by a 7.5-week, intensive college-level math course.	The accelerated course sequence increased completion of a college-level math course by 33 percentage points, college credit accumulation by 6.2 credits, and graduation rate by 9 percentage points.
Corequisite Remediation (1, 2)	Douglas, Edwards, & McKay (2020): RCT at one New Jersey community college (Union County). Students enroll in college-level math and participate in required weekly tutoring.	Corequisite math increased completion of a college-level math course by 11.4 percentage points. There was no impact on degree attainment after three years.
	Logue et al. (2019): RCT at three New York City community colleges of corequiste math. Students enroll in college-level statistics and receive weekly supplemental instruction.	Corequisite statistics increased completion of a college-level math course by 19.2 percentage points, credit accumulation by 4.4 credits, and graduation rate by 8.1 percentage points.
	Miller et al. (2022): RCT at five Texas community colleges of corequisite English.	Corequisite English increased completion of a college-level English course by 18.4 percentage points and credit accumulation by 1.5 credits. There was no impact on persistence.
CUNY Accelerated Developmental Writing Courses (1, 3)	Hodara & Jaggars (2014): Quasi-experimental study at three New York City community colleges of an accelerated developmental writing course that emphasizes group discussion.	The accelerated course increased completion of a college-level English course by 6.1 percentage points, credit accumulation by 2.1 credits, and graduation rate by 2.2 percentage points.
CUNY ASAP (2, 5)	Scrivener et al. (2015): RCT at three New York City community colleges of a three-year program that provides advising, tutoring, and financial support.	CUNY ASAP increased credit accumulation by 8.7 credits and graduation rate by 18.7 percentage points.
CUNY Start (2, 3, 4)	Weiss et al. (2021): RCT at four New York City community colleges of a pre-matriculation program that emphasizes student-centered teaching and provides support services.	CUNY Start increased completion of college-level math and English by 4 to 5 percentage points, college-level credit accumulation by 1.4 credits, and graduation rate by 3.1 percentage points.
Dana Center Mathematics Pathways (DCMP) (1, 3)	Biedzio & Sepanik (2022): RCT at four Texas community colleges of accelerated developmental math pathways in statistics and quantitative reasoning. DCMP emphasizes student-centered, contextualized instruction.	DCMP increased completion of a college-level math course by 6 percentage points. There was no impact on credits earned or degree attainment.
	Schudde & Keisler (2019): Quasi-experimental study of accelerated developmental math pathways in 20 Texas community colleges .	DCMP increased completion of a college-level math course by 36 percentage points and credit accumulation by 5.9 credits. There was no impact on degree attainment.
	Schudde & Meiselman (2019): Quasi-experimental study of accelerated developmental math pathways in 27 Texas community colleges.	DCMP increased completion of a college-level math course by 6 percentage points and college-level credit accumulation by 1.1 credits. There was no impact on degree attainment.
I-BEST (2, 3)	Martinson et al. (2021): RCT at three Washington State community colleges. I-BEST offers concurrent, contextualized instruction in workforce training and basic skills.	I-BEST increased total credits earned by 10.9 percentage points and receipt of any credential by 31 percentage points.
Multiple Measures Assessment[a] (1)	Barnett et al. (2020): RCT at seven New York community colleges of multiple measures assessment (MMA) systems.	MMA increased completion of a college-level course by 8 to 10 percentage points and credits earned by 3.9 credits.
	Cullinan & Biedizio (2021): RCT at five Midwestern community colleges of MMA systems.	MMA increased completion of a college-level course by 11 to 16 percentage points and college-level credits accumulation by 1.3 to 1.5 credits.

NOTE: Length of study follow-up period varies. See Appendix Table A1 for additional detail.

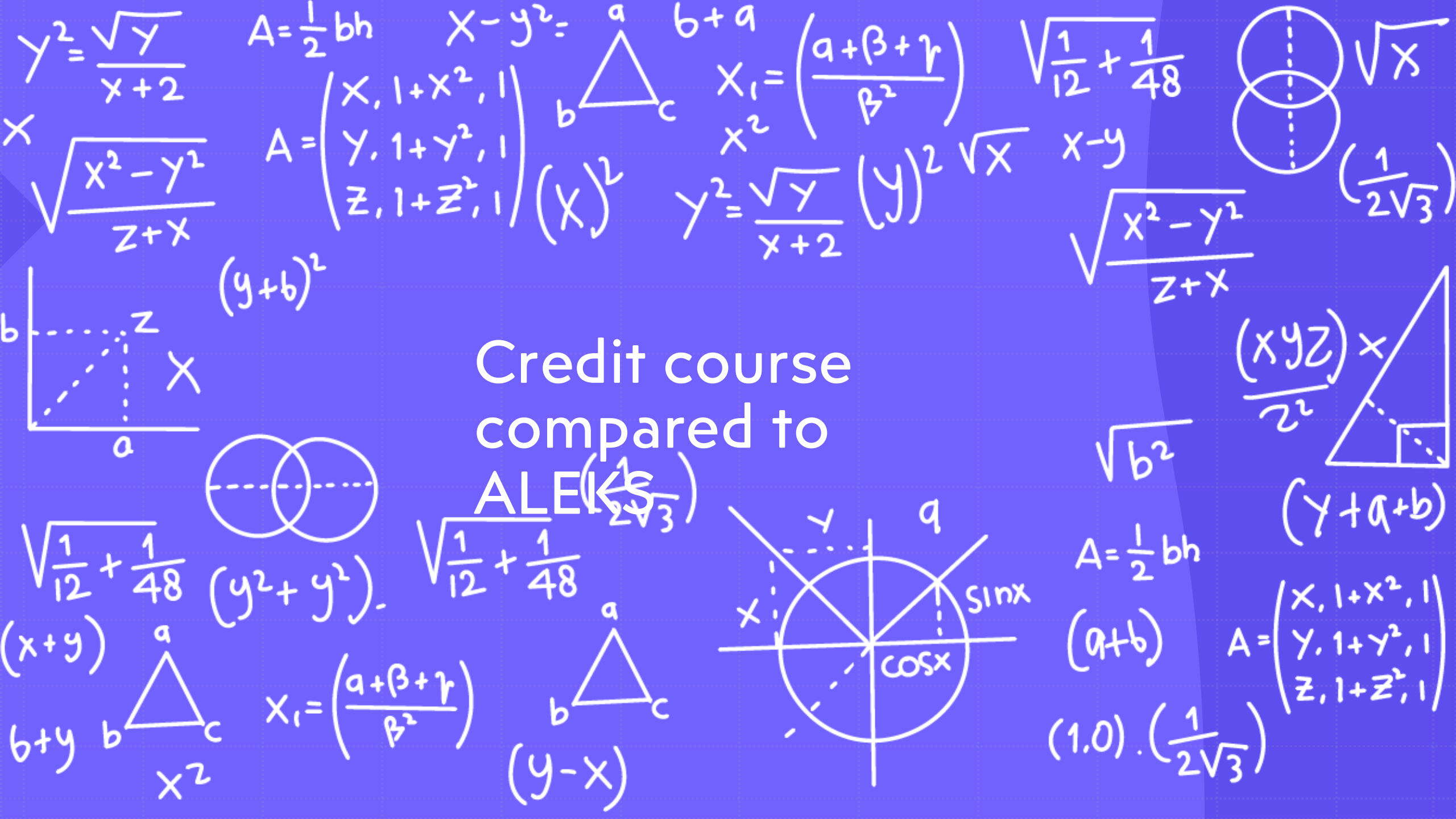
[a] Impacts reported are for students in the "bump-up zone," who were placed into college-level courses using multiple measures assessment but would have been placed into developmental courses using their placement test score alone.

Still no clear consensus on specific interventions

Bickerstaff et al., (2022)

- Principle 1: Grant students access to college-level math and English courses.
  - based on evidence of successful student completion rates without any remediation before college-level credit course
- Principle 2: Provide targeted and tiered supports to address students' academic and nonacademic needs.
  - based on evidence that support resources, some of which may occur before enrollment in the college-level credit course, prove beneficial to student completion rates
- Principle 3: Employ contextualized curriculum and student-centered pedagogy.
  - focused on pedagogical approaches and micro-level course dynamics
- Principle 4: Use equity-minded approaches for design and implementation.
  - focused on diversity, equity, and inclusion philosophies exhibited in micro-level interpersonal dynamics
- Principle 5: Implement developmental education reforms alongside comprehensive, sustained supports to improve long-term outcomes.
  - based on high proportion of at-risk students who need remediation

Credit course compared to ALEKS



Research question and alignment with the recommendations

Research Question	Recommendation Alignment	
How does technology in remediation impact the student's progress through mathematics remediation?	**Federal Recommendations**	1, 3
	Iowa Recommendations	2, 4

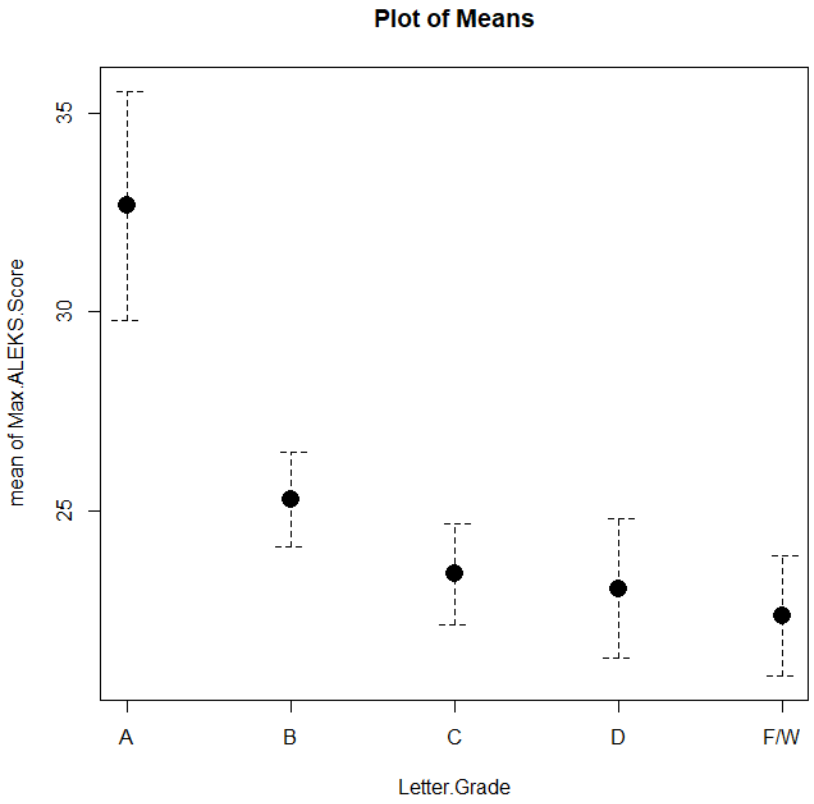
Federal Reform Recommendations:

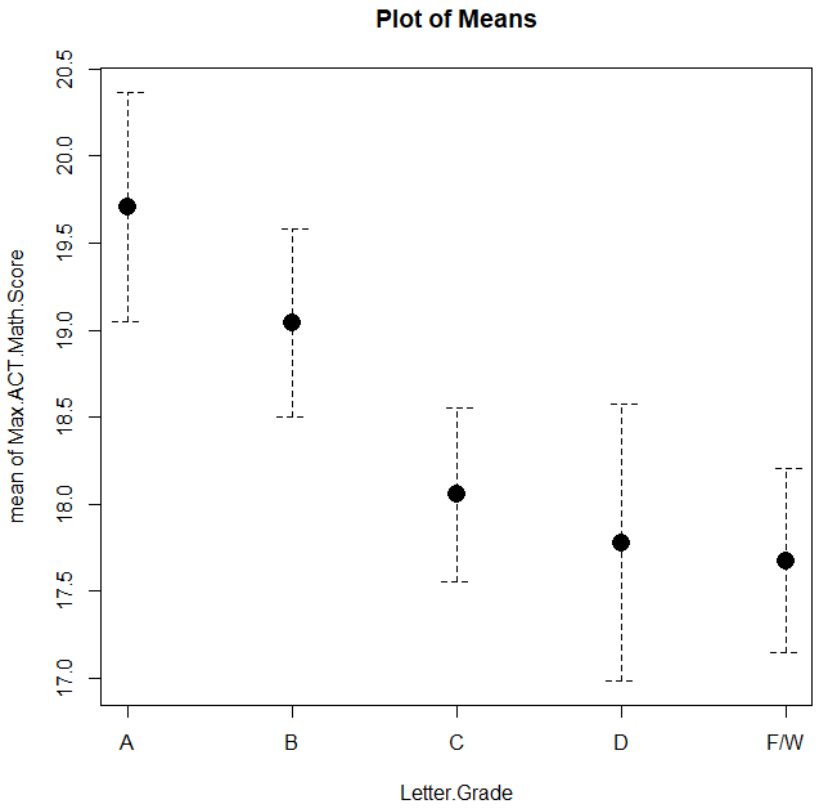
1. Multiple Measures
2. Secondary Education Collaboration
3. Less Time in Remediation for Students
4. More Corequisities and Fewer Prerequisites
5. Comprehensive Sustainable Student Supports

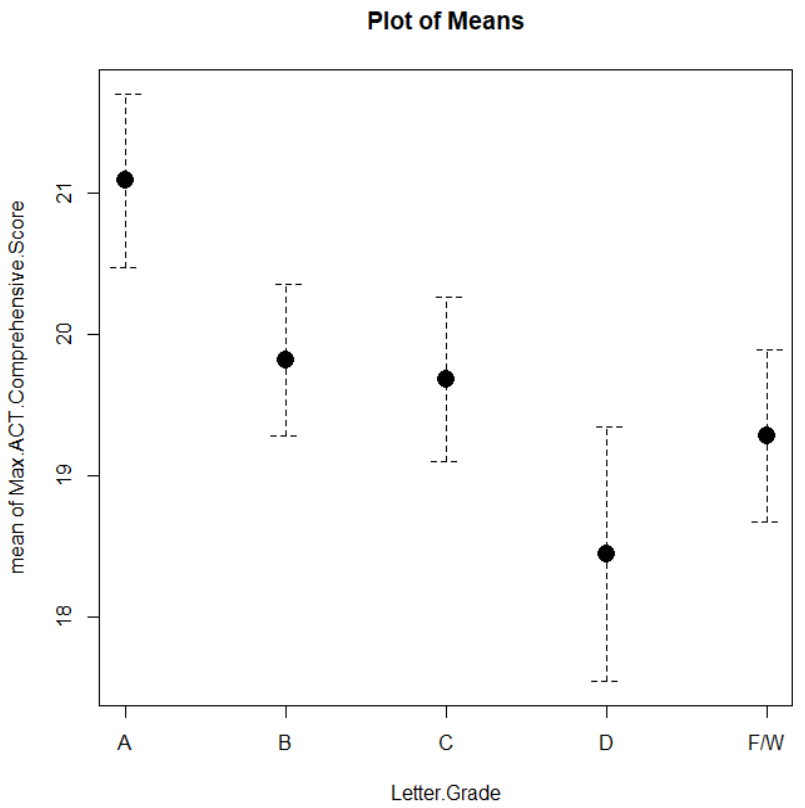
Iowa Reform Recommendations:

1. Statewide Student Success Center
2. Multiple Measures
3. Robust Sustainable Student Supports
4. Accelerated or Integrated Courses

MAT-111, 17/FA to 22/SU (N=420)







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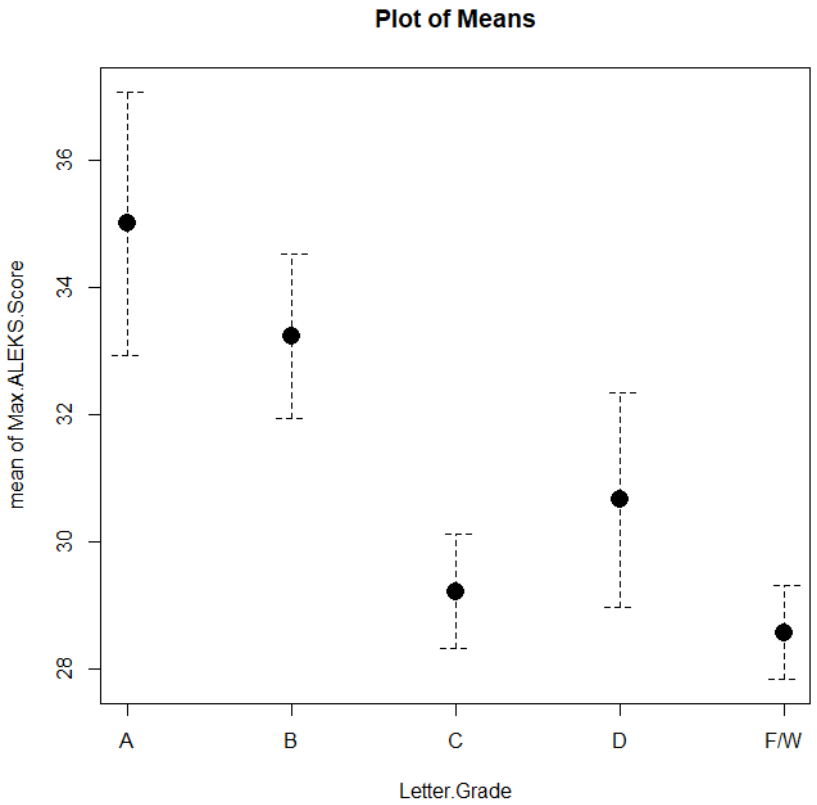
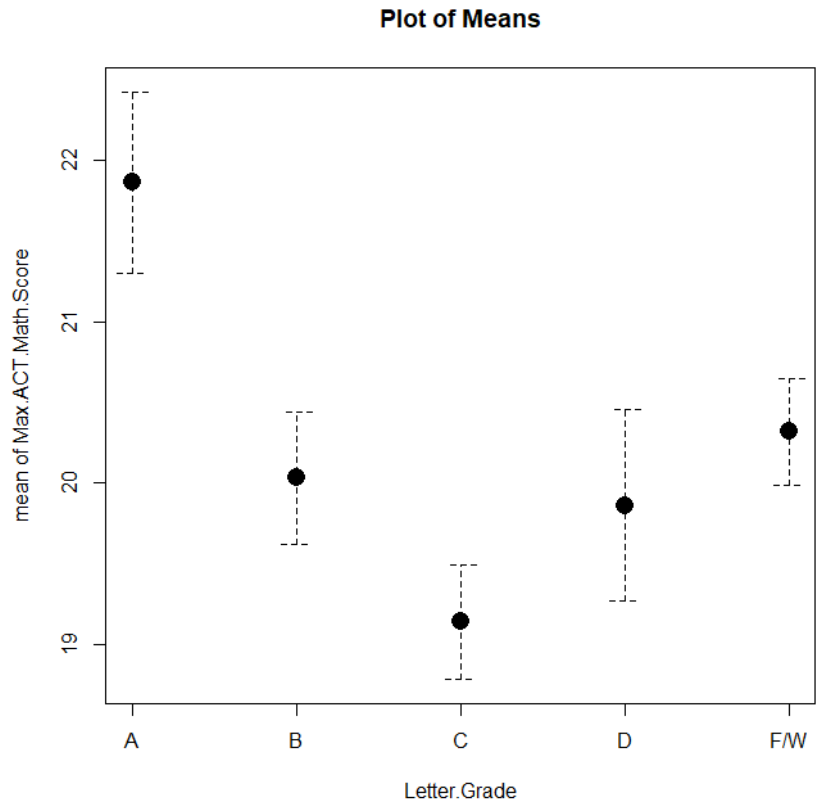
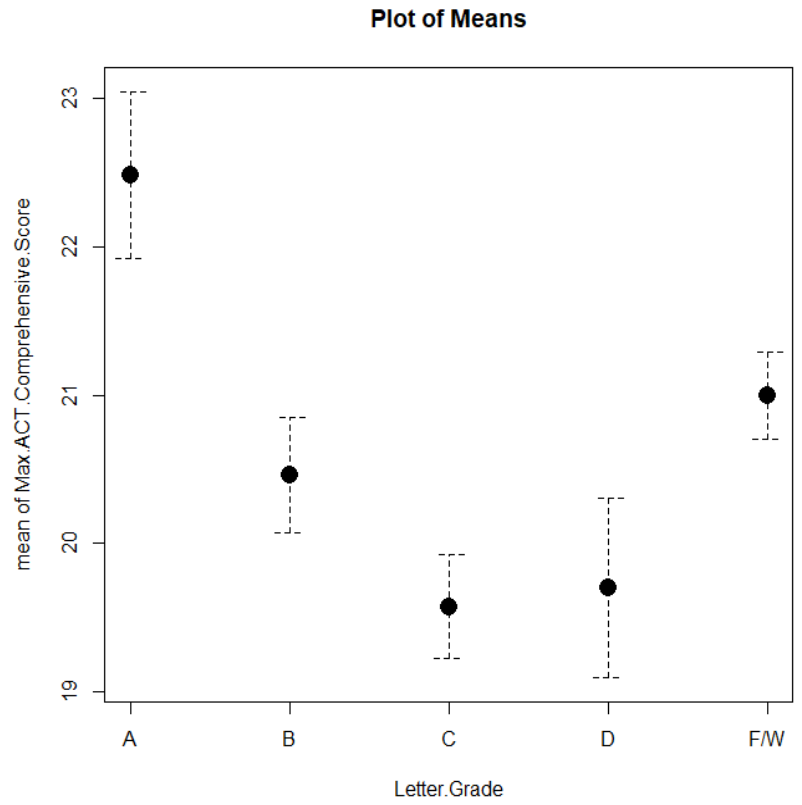






Digging a little deeper: Self-selection and technology literacy

Concerns about self-selection bias

Control for self-selection bias (match samples based on characteristics from the experimental group)

Thus, the self-selection bias can be addressed at least somewhat by a stratified random sample drawn from all self-directed ALEKS students using:

- original ALEKS score distribution comparable to the self-selected course students
- maximum of one ALEKS test
- proportion of students eligible for Pell grants
- advisors
- distribution of males and females comparable to the self-selected course students
- racial demographics comparable to the self-selected course students

Changes at college that allow further study

HISED and the orientation course

[ARC 1775C, IAB 12/10/14, effective 1/14/15; Editorial change: IAC Supplement 8/23/23]

877—32.5(260C) Student eligibility. A person seeking to enroll in an adult education and literacy program shall be at least 16 years of age and not enrolled or required to be enrolled in a secondary school under Iowa Code section 299.1A and shall meet one of the following eligibility requirements:

1. Lacks sufficient mastery of basic educational skills to enable the person to function effectively in society, demonstrated by a score of Adult Secondary Education (Low) or lower in at least one modality;
2. Does not have a secondary school diploma or a recognized equivalent; or
3. Is unable to speak, read, or write the English language.

[ARC 1775C, IAB 12/10/14, effective 1/14/15; Editorial change: IAC Supplement 8/23/23]

Iowa administrative code 877-32
https://www.legis.iowa.gov/docs/iac/chapter/08-23-2023.877.32.pdf

Research questions and alignment with the recommendations

Research Question	Recommendation Alignment	
How do other factors impact a student's progress through mathematics remediation?	**Federal Recommendations**	5
	Iowa Recommendations	3
How does a student's level of digital literacy impact the student's progress through mathematics remediation?	**Federal Recommendations**	1, 3
	Iowa Recommendations	2, 4
How does a student's level of information literacy impact the student's progress through mathematics remediation?	**Federal Recommendations**	3
	Iowa Recommendations	4

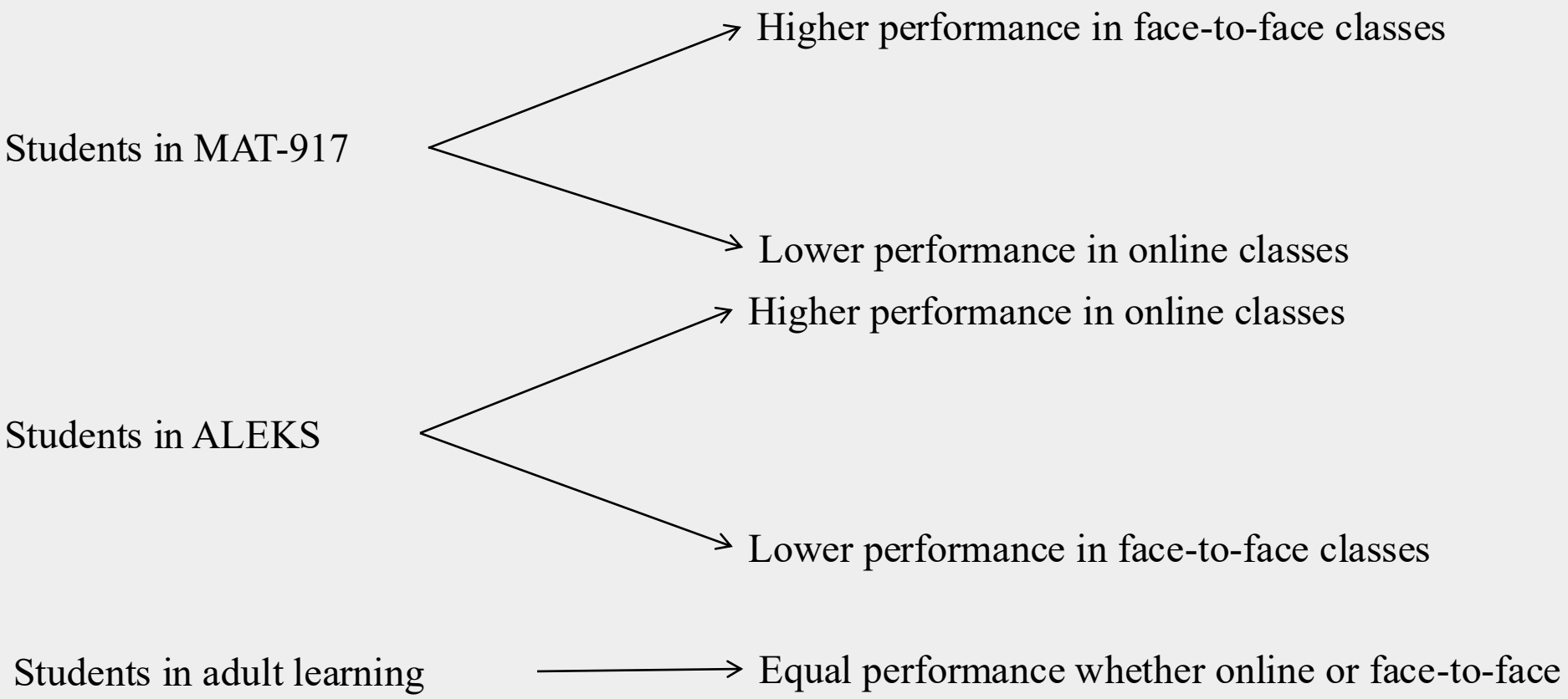
Federal Reform Recommendations:

1. Multiple Measures
2. Secondary Education Collaboration
3. Less Time in Remediation for Students
4. More Corequisities and Fewer Prerequisites
5. Comprehensive Sustainable Student Supports

Iowa Reform Recommendations:

1. Statewide Student Success Center
2. Multiple Measures
3. Robust Sustainable Student Supports
4. Accelerated or Integrated Courses

Prospective model



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