E3 ALLIANCE
EDUCATION EQUALS ECONOMICS

E3-3D:
Math Matters!

Huston-Tillotson University

1/23/18

Thank You to Today's Host :

Thank You to Today's Host :

HUSTON-TILLOTSON UNIVERSITY
1875 AUSTIN, TEXAS

Thank You for Today's Breakfast:

laMadeleine®

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EDUCATION EQUALS ECONOMICS

Pathways of Promise Initiative

Christine Bailie, M.P.Aff.

Deputy Director, P-16 Strategic Initiatives

Pathways of Promise Initiative is Made Possible By:

GREATER TEXAS FOUNDATION

Today's Conversation

I. Pathways of Promise Overview

II. Keynote Remarks by Dr. Colette Pierce Burnette

III. Statewide and Central Texas Mathematics Analysis

IV. Questions & Answer

V. Recommendations for Fortifying Math Pathway

VI. Panel Conversation: Implementation

VII. Call to Action

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E3 Alliance is a Catalyst For Educational Change in Central Texas

Mission

*E3 Alliance uses **objective data** and **focused community collaboration** to align our education systems so all students succeed and lead Central Texas to economic prosperity*

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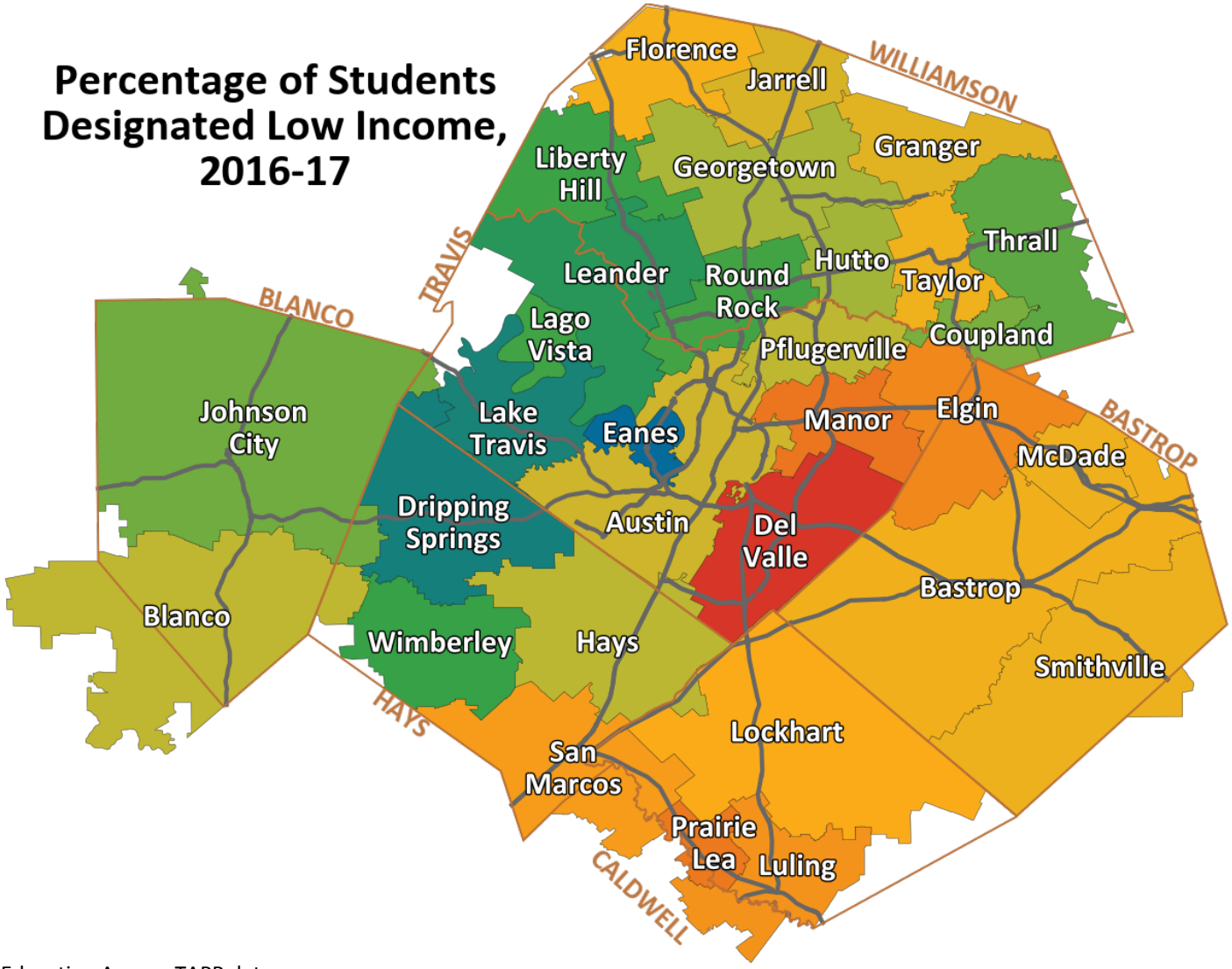
Equity Lens Drives Our Work in Central Texas

2%	Eanes
10%	Dripping Springs
12%	Lake Travis
19%	Leander
24%	Wimberley
25%	Liberty Hill
26%	Lago Vista
26%	Round Rock
30%	Thrall
34%	Johnson City
36%	Coupland
42%	Hutto
43%	Georgetown
48%	Hays
48%	Pflugerville
49%	Blanco
53%	Austin
56%	Jarrell
59%	Granger
63%	Smithville
63%	McDade
64%	Taylor
64%	Bastrop
65%	Florence
68%	Lockhart
71%	San Marcos
72%	Luling
74%	Elgin
76%	Prairie Lea
77%	Manor
87%	Del Valle



Source: E3 Alliance analysis of Texas Education Agency TAPR data
Visit http://E3Alliance.org/profile for the full Central Texas Education Profile

Pathways of Promise Steering Committee

LOCKHART ISD

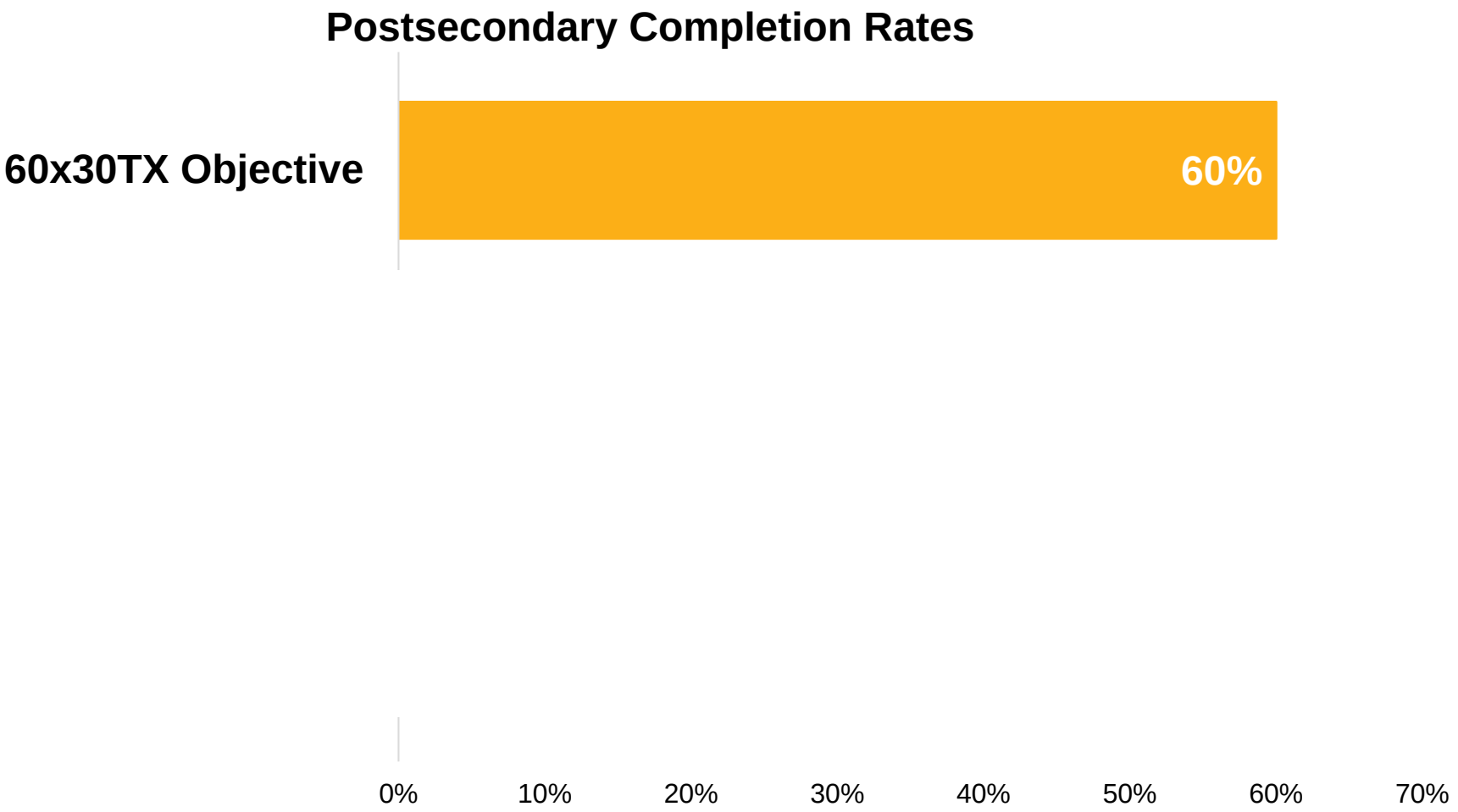
Hays CISD

EANES ISD
AUSTIN, TEXAS

ROUND ROCK ISD

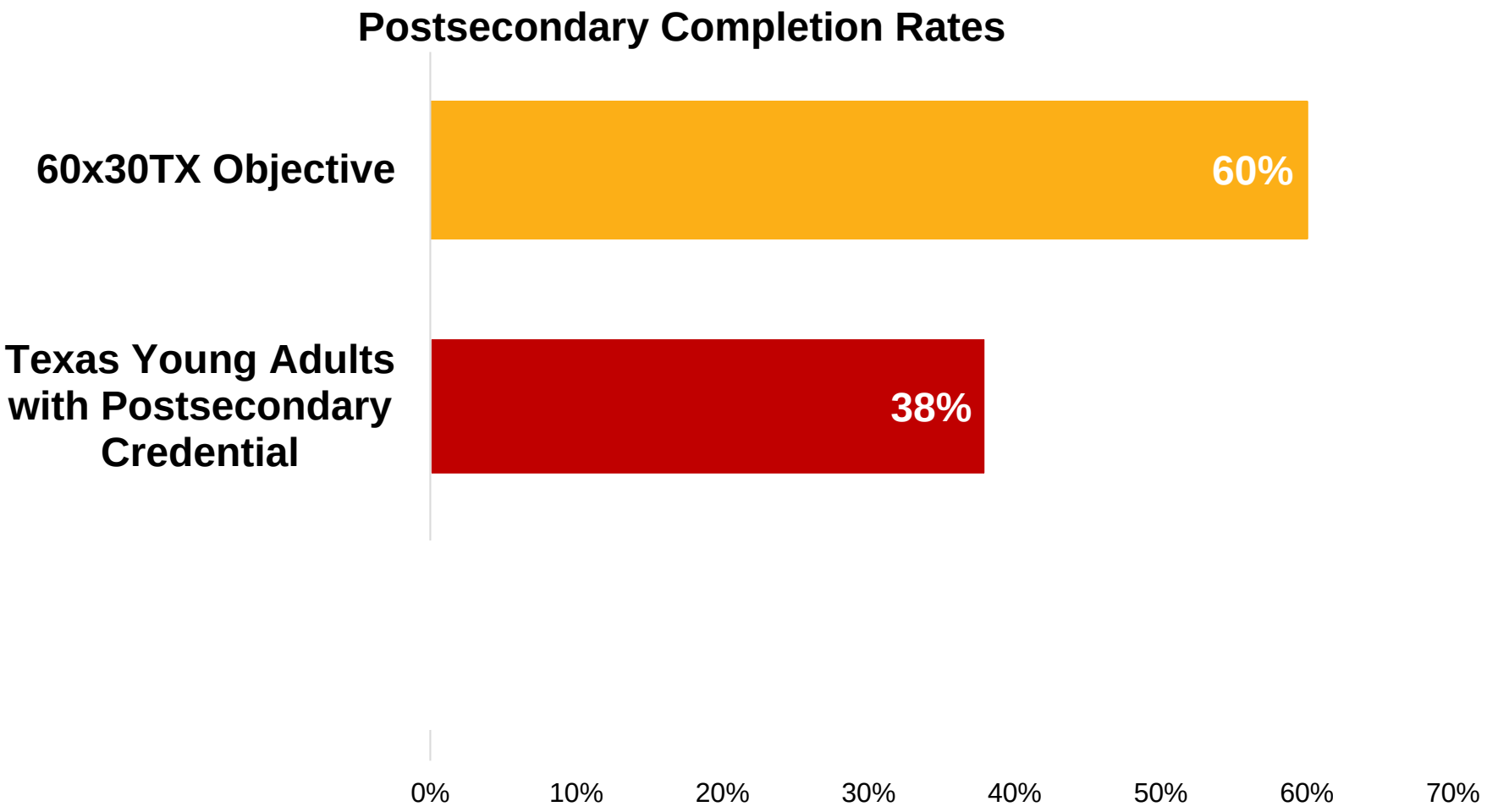
The University of Texas at Austin
Center for STEM Education
College of Education

Texas Mandates 60% of Young Adults with College Degree by 2030, But…



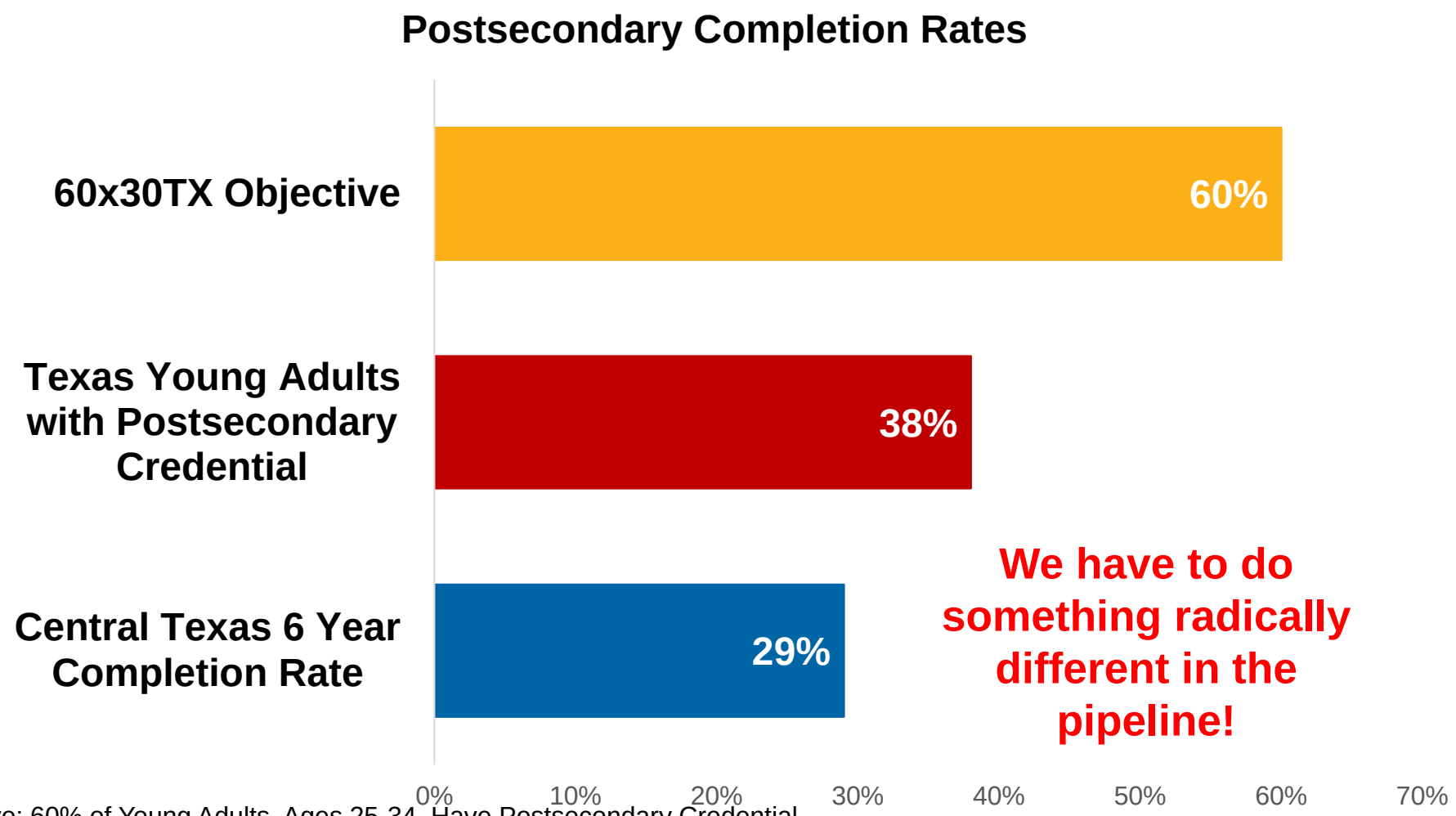
Objective: 60% of Young Adults, Ages 24-35, Have Postsecondary Credential
Source: THECB report http://www.thecb.state.tx.us/reports/PDF/6584.PDF

We Are Only 2/3 of the Way There



Objective: 60% of Young Adults, Ages 24-35, Have Postsecondary Credential
Source: THECB report http://www.thecb.state.tx.us/reports/PDF/6584.PDF

We Are NOT on Track to Meet 60x30TX



We have to do something radically different in the pipeline!

Objective: 60% of Young Adults, Ages 25-34, Have Postsecondary Credential

Sources: Objective, TX Young Adult IHE credential: THECB report, Texas: 2008-12 American Community Survey data; Central Texas 6 Yr completion rate: E3 Alliance analysis at UT Austin ERC.

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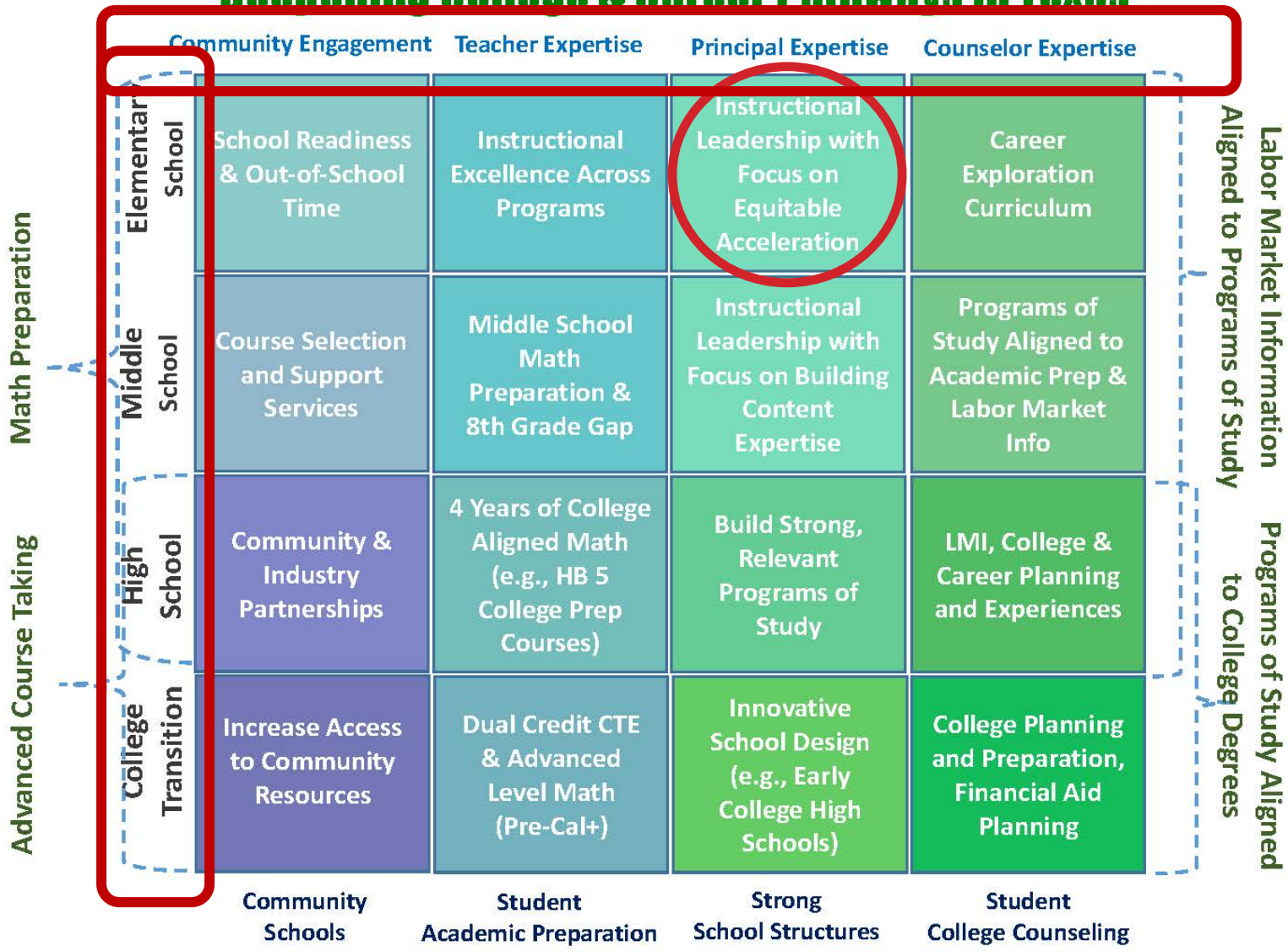
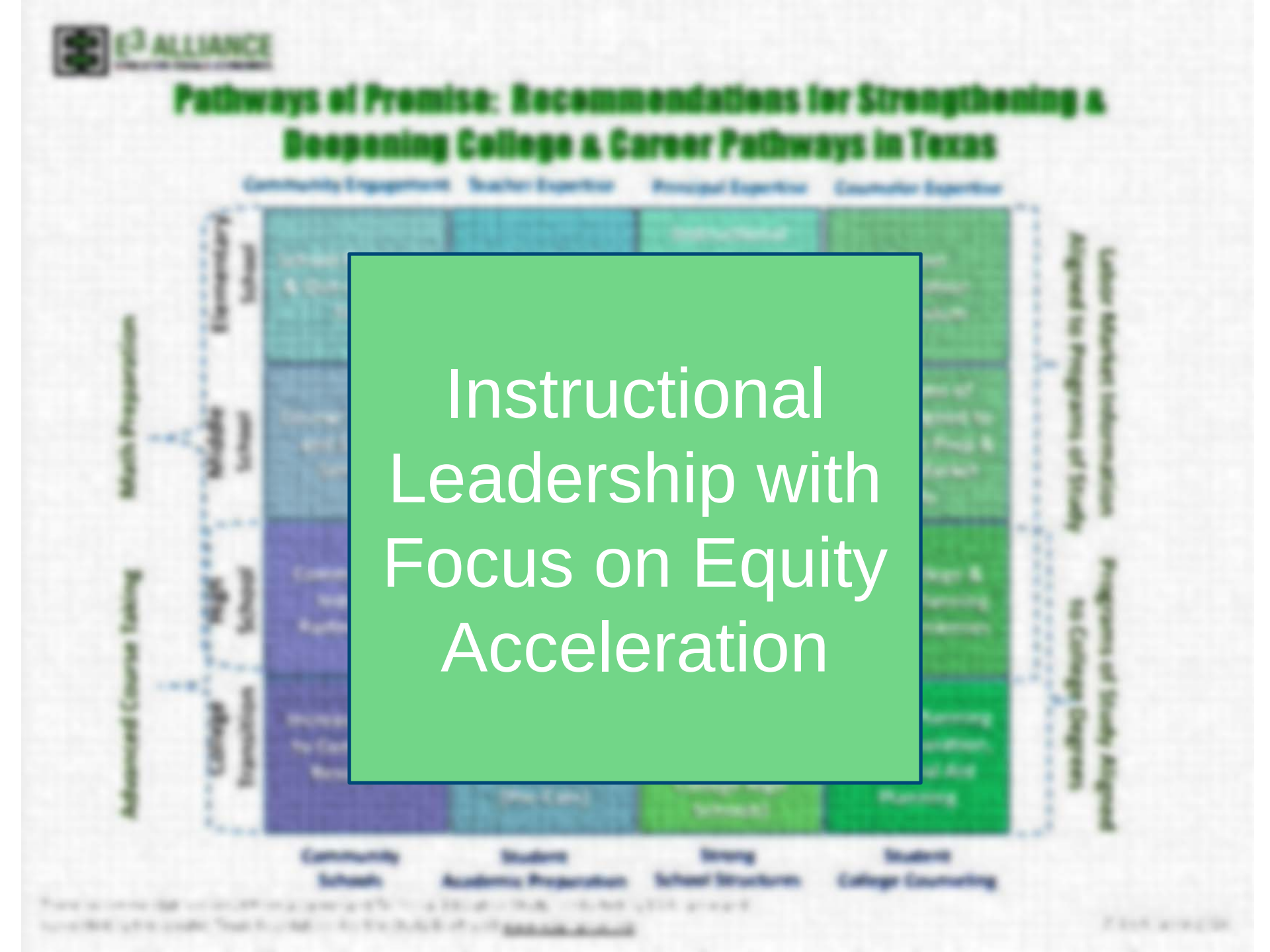
Pathways of Promise: Recommendations for Strengthening & Deepening College & Career Pathways in Texas



These recommendations result from a Career and Technical Education Study conducted by E3 Alliance and supported by the Greater Texas Foundation. For the Study Brief, visit www.e3alliance.org.


Pathways of Promise: Recommendations for Strengthening & Deepening College & Career Pathways in Texas
Instructional Leadership with Focus on Equity Acceleration

The Power of STEM

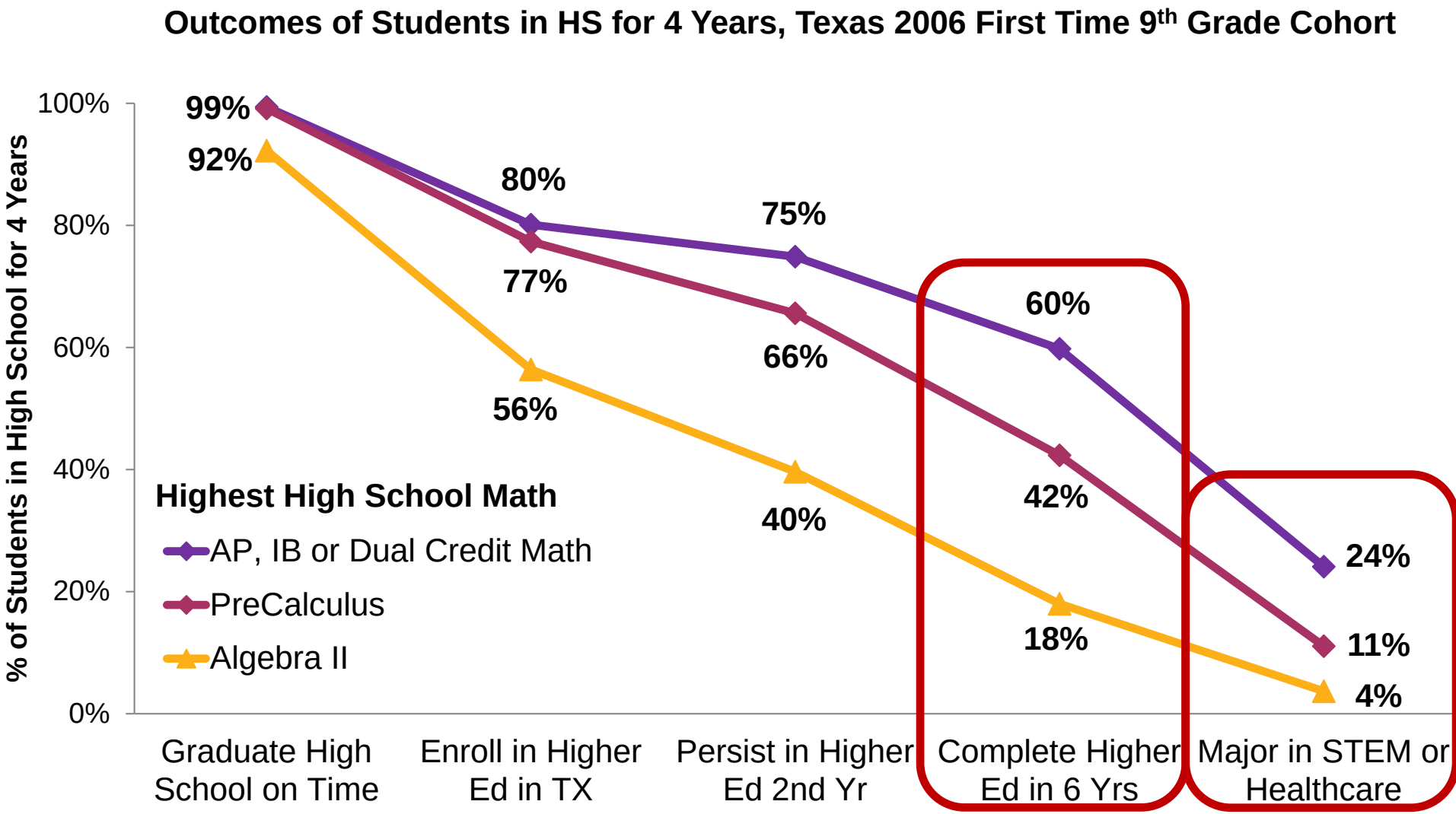
Dr. Colette Pierce Burnette

President, Huston-Tillotson University

Statewide & Central Texas Mathematics Analysis

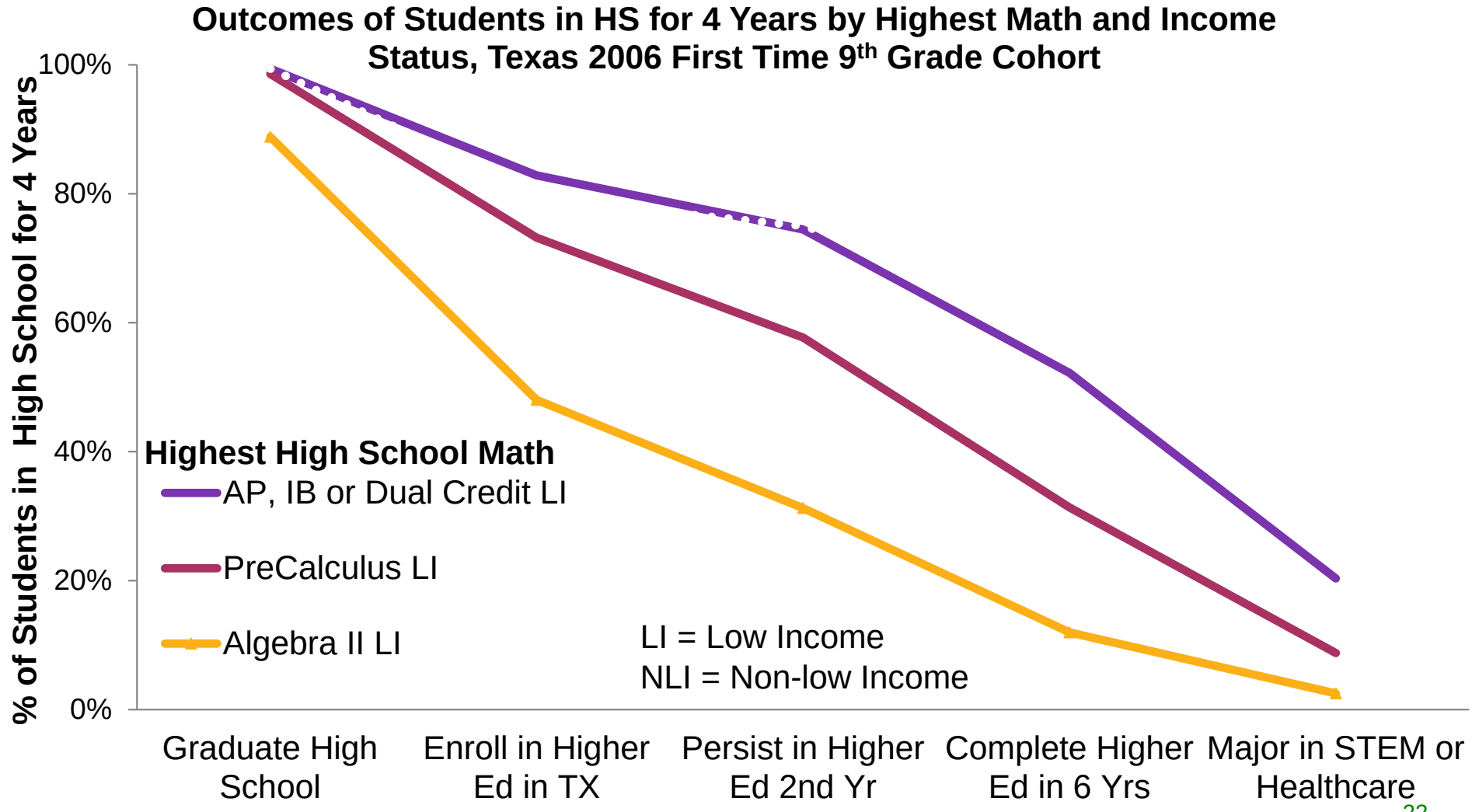
Amy Wiseman, Ph.D.
Director of Research Studies

Gaps in Higher Education Outcome Rates by Highest Math



Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Low Income Student Outcomes Look Like Outcomes of Non-Low Income Students with One Fewer HS Math



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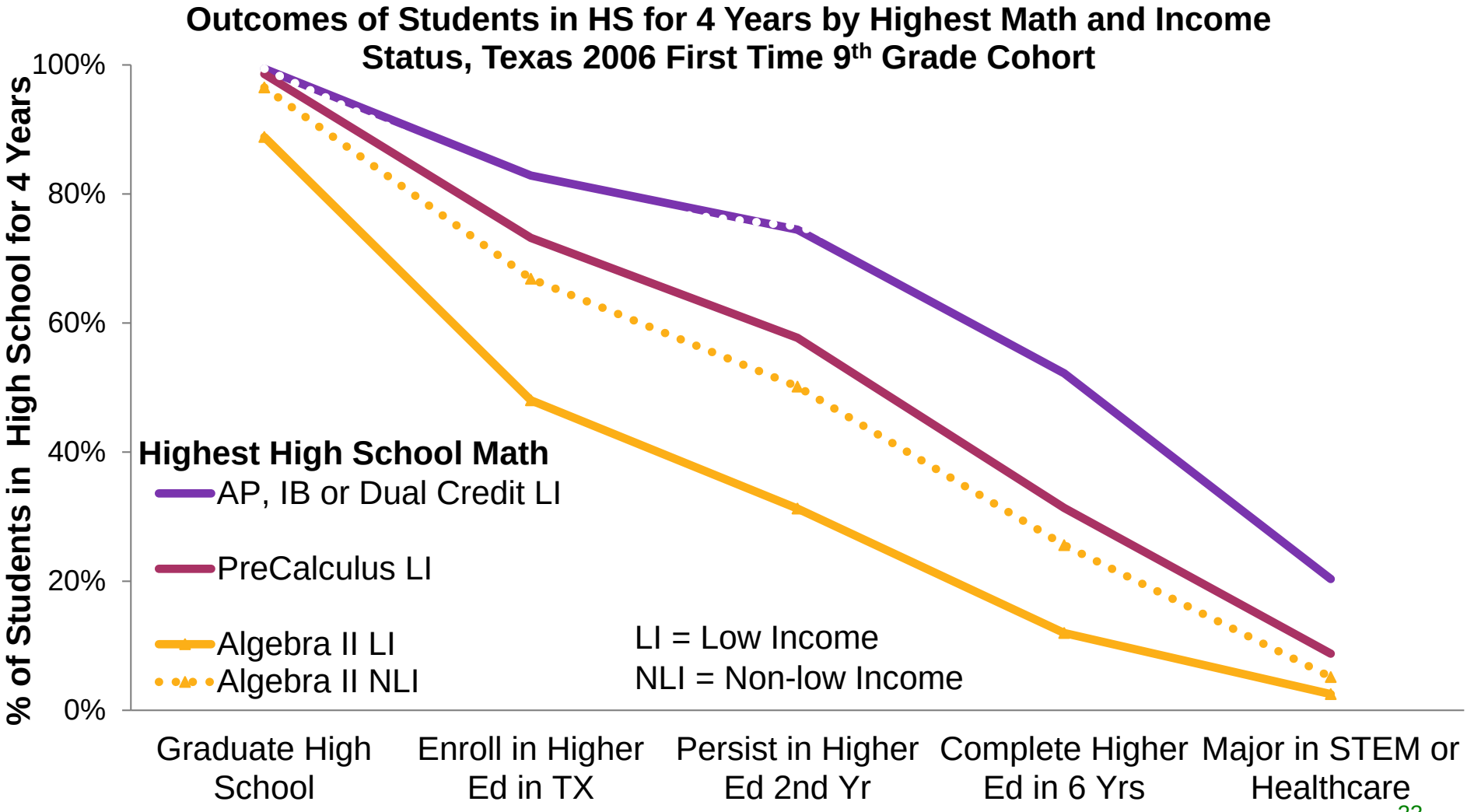

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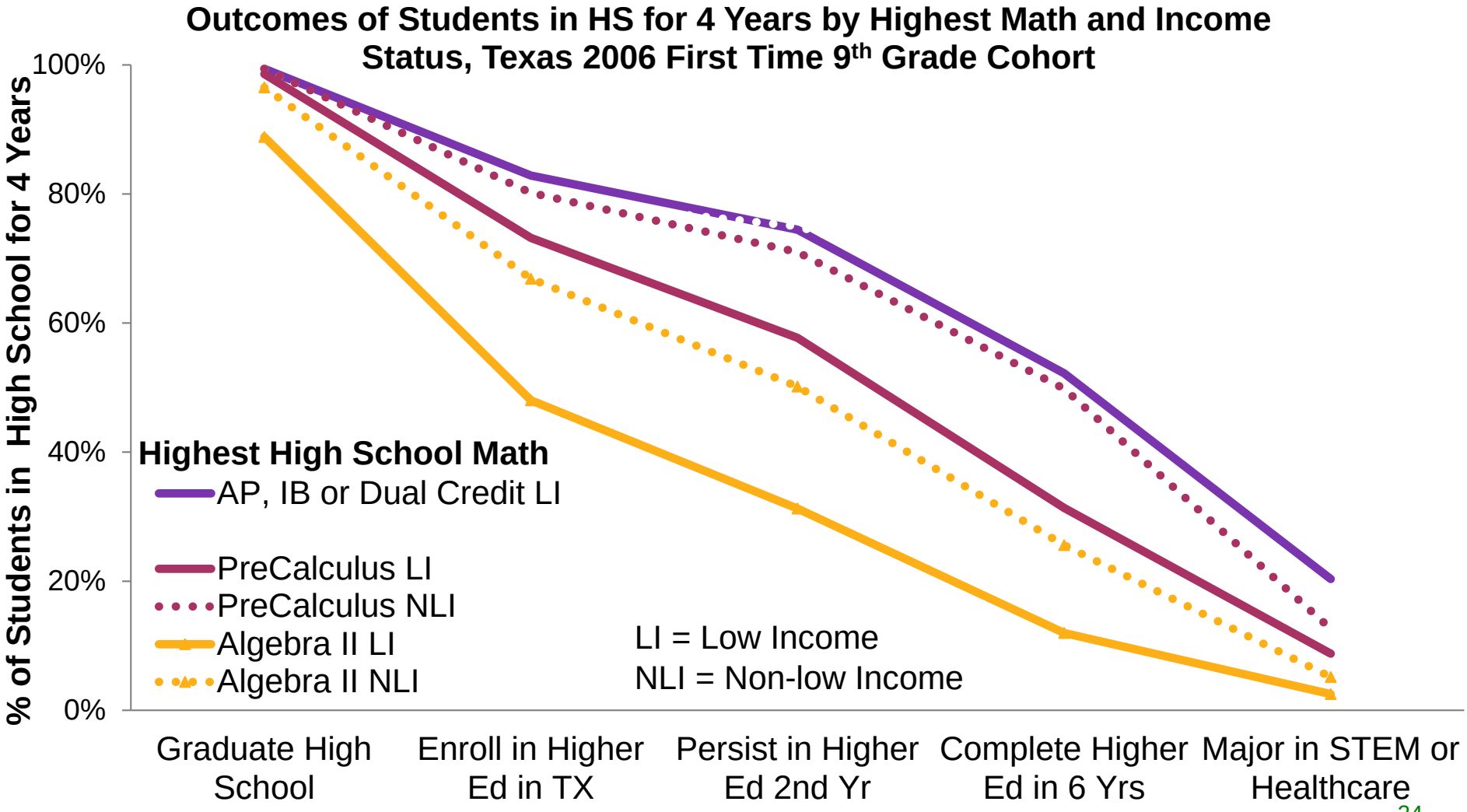


Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

How Do We Get Students to Take More Math?

Algebra I Enrollment in Middle School

2012 5th Grade Cohort

Limited to students who took 5th Grade STAAR Math and were enrolled across middle school

Demographic	Texas	Central Texas
Student Count	342 K	22 K
Low Income	63%	51%
Asian	4%	5%
Black	12%	8%
Hispanic	52%	47%
White	30%	37%
English Language Learner	27%	24%

Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

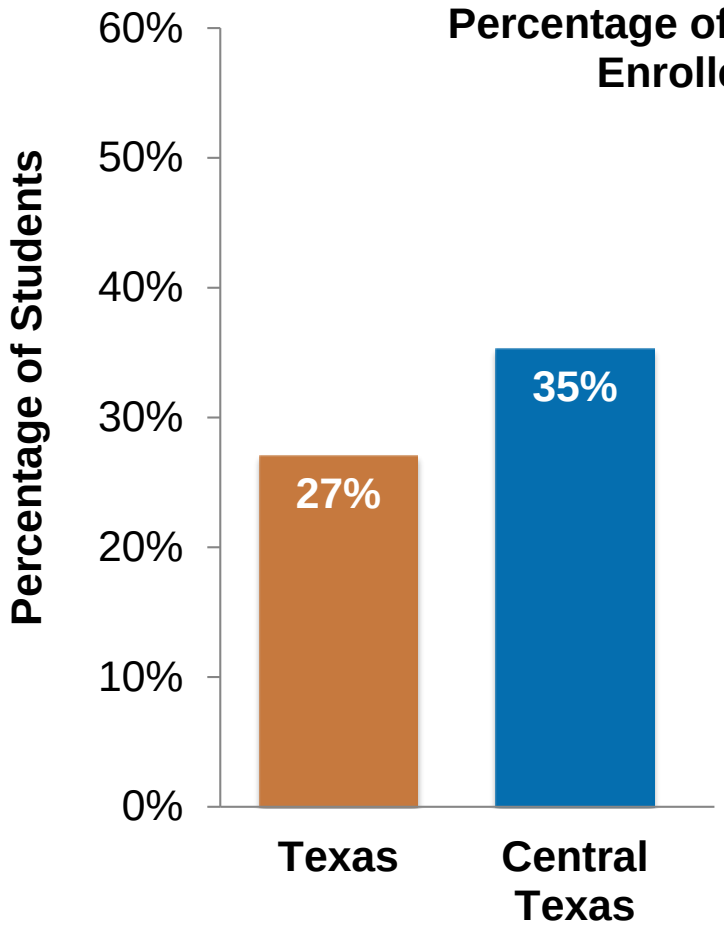
Definitions of 'Enrolled in Algebra 1 by 8th Grade'

- 5th Grade Cohort students
- During *middle school*:
  - Sat through at least one semester of Algebra 1

  OR
  - Took high school math course beyond Algebra 1

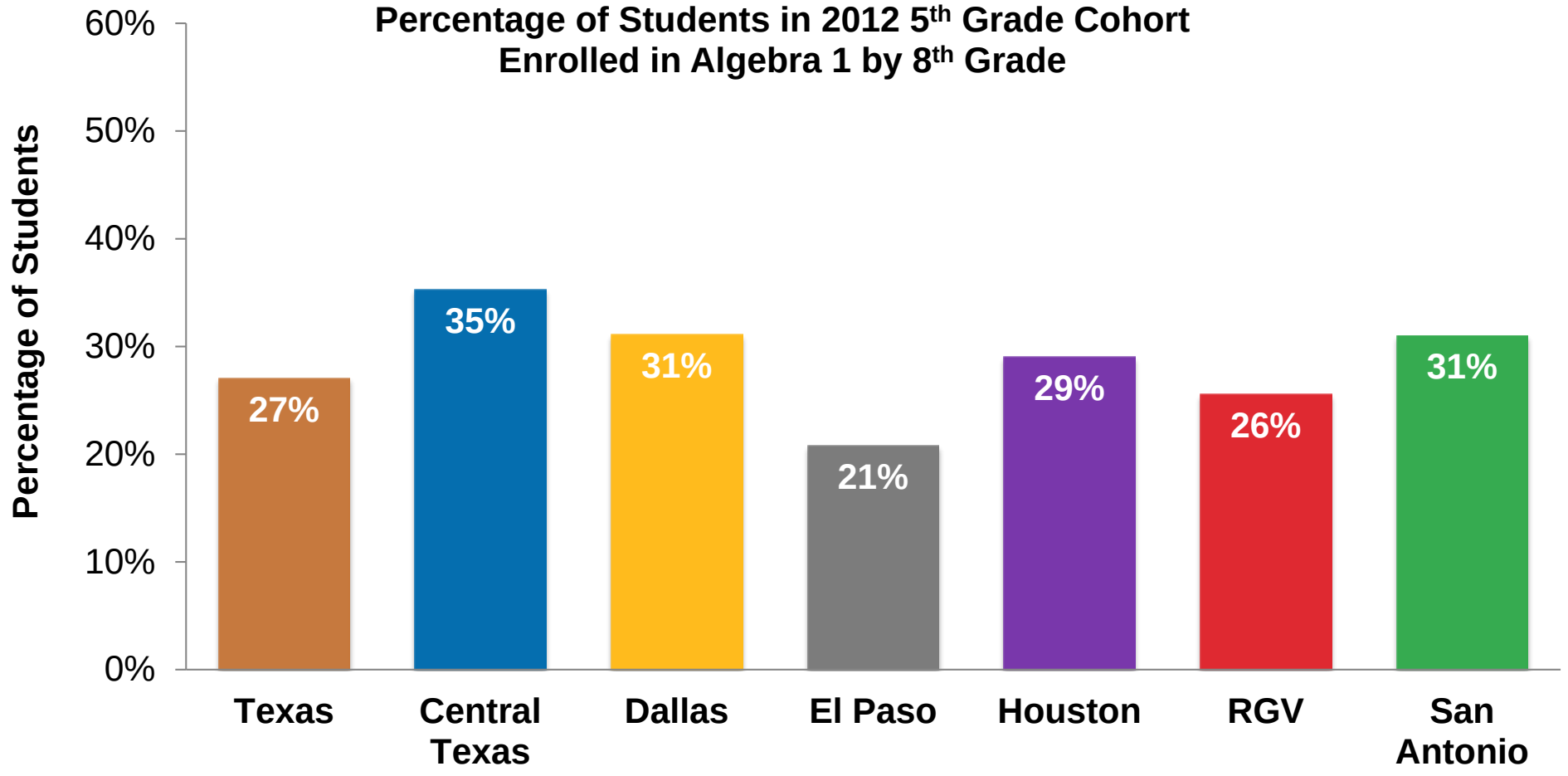
  OR
  - Took Algebra 1 End of Course exam

CTX Has the Highest Percentage of Students on Advanced Math Pathway



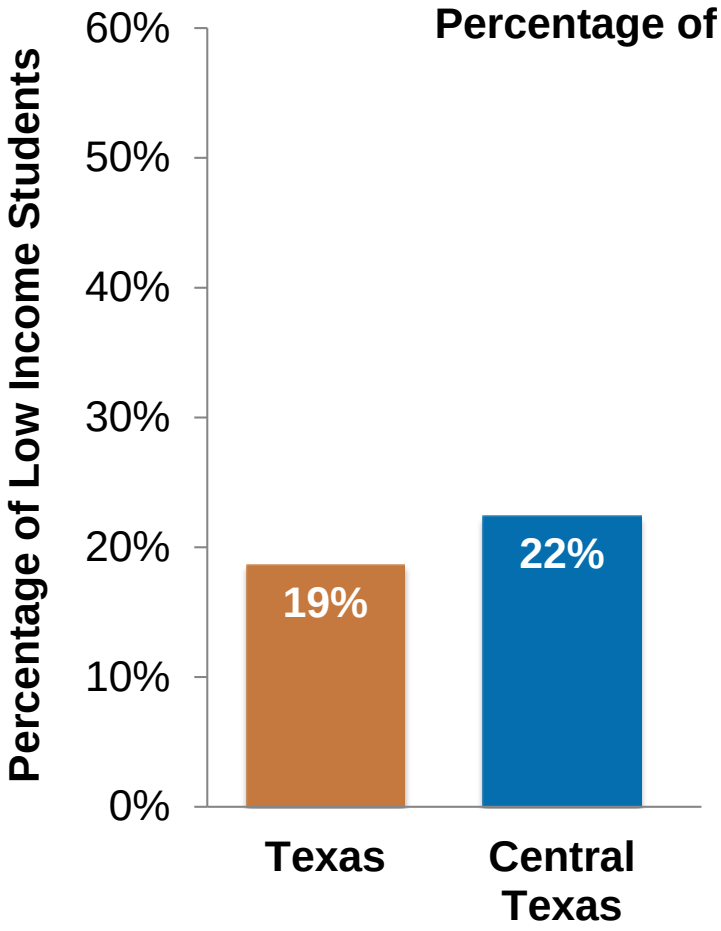
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

CTX Has the Highest Percentage of Students on Advanced Math Pathway



Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

But Looks Like Other Regions for % of Low Income Students on Advanced Math Pathway



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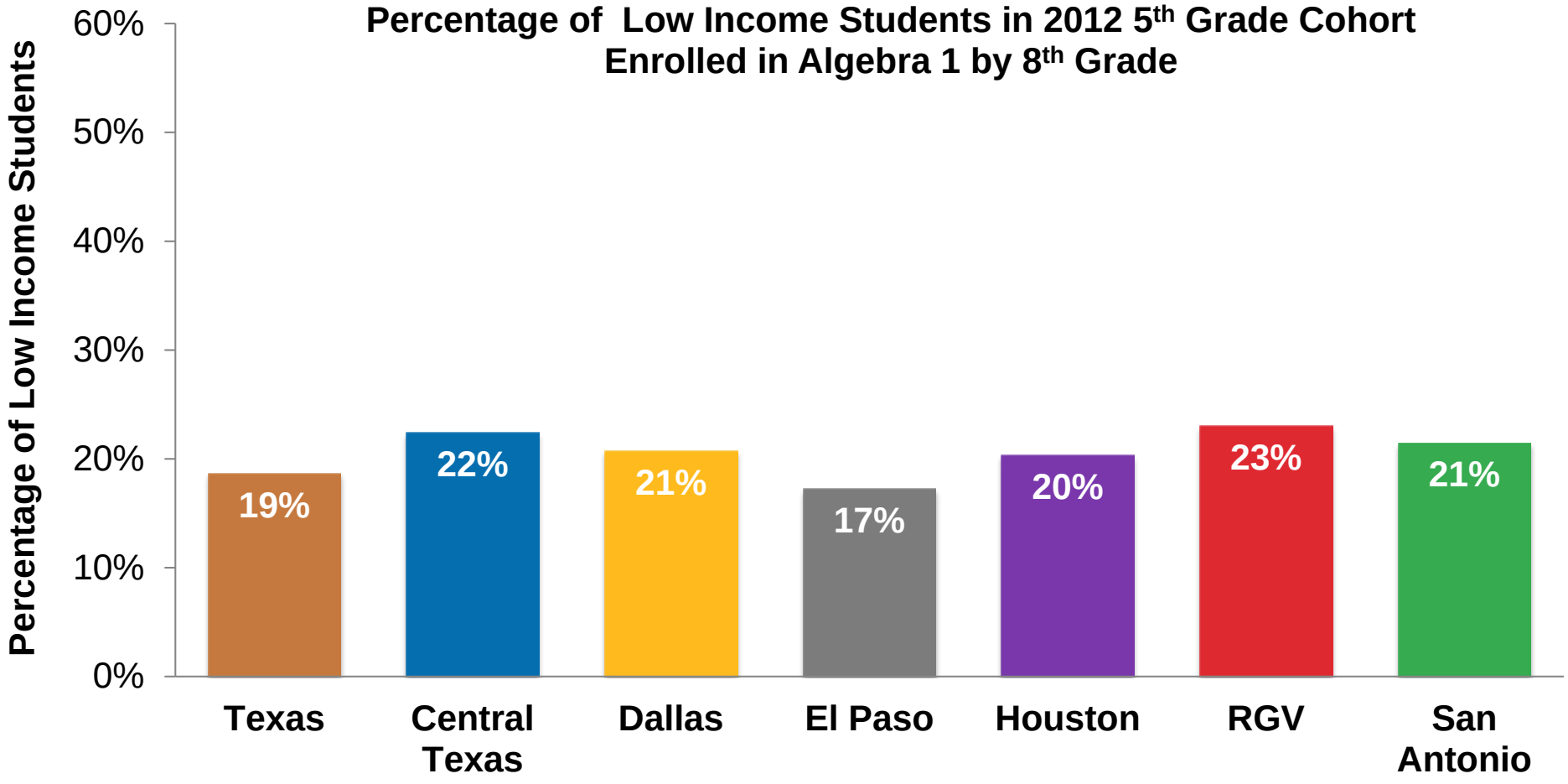
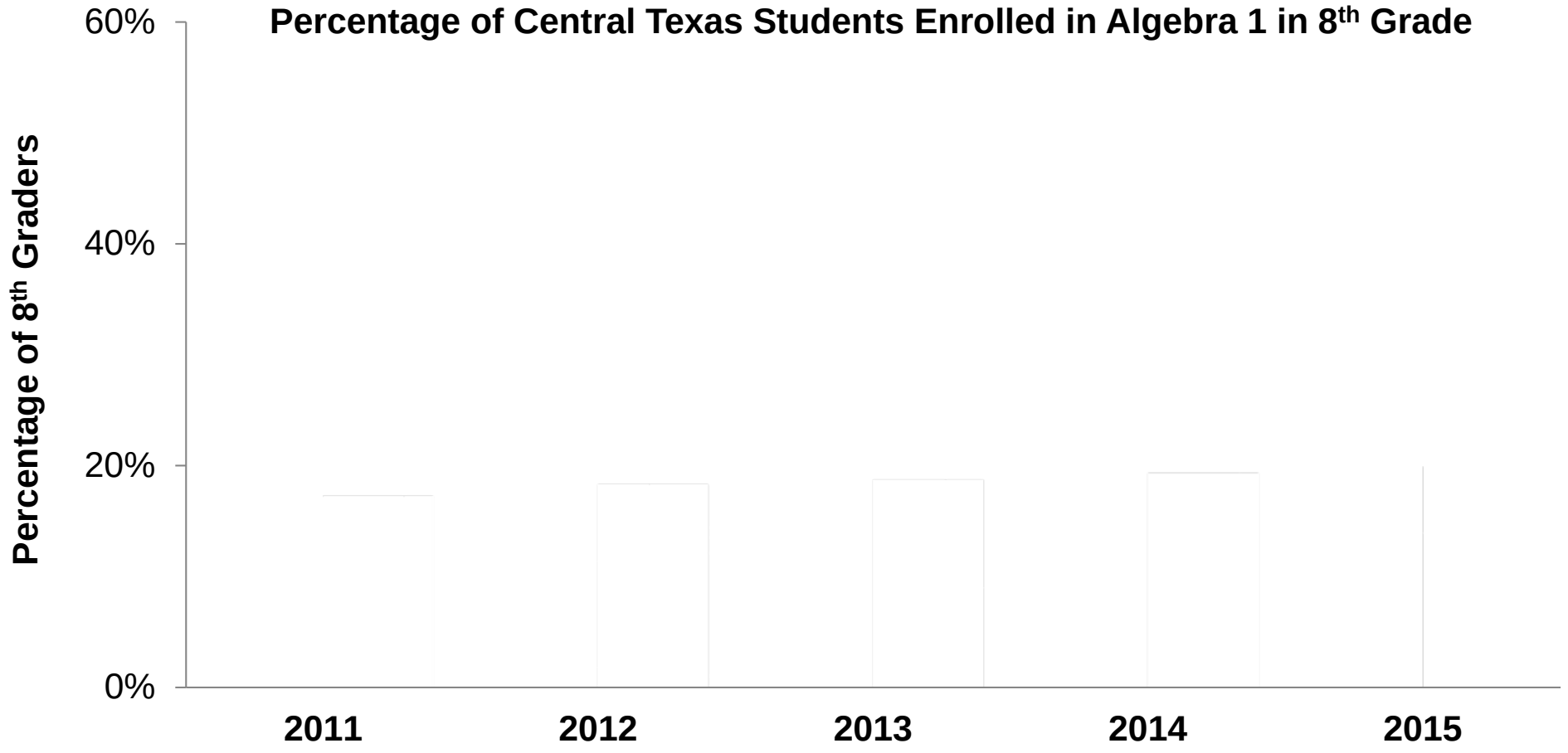


Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Low Income Enrollment Rates for Algebra I in 8th Grade Slowly Increasing



Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

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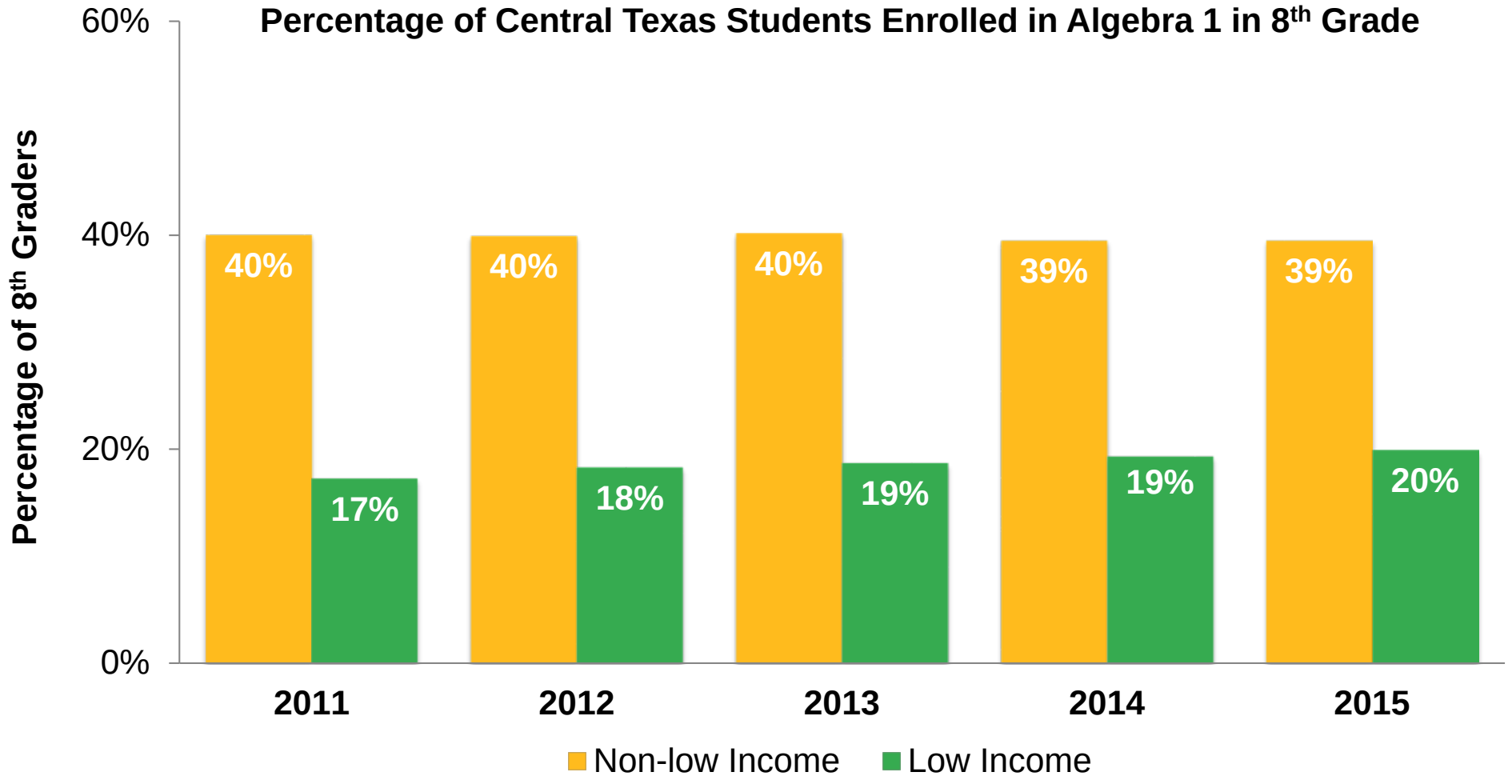
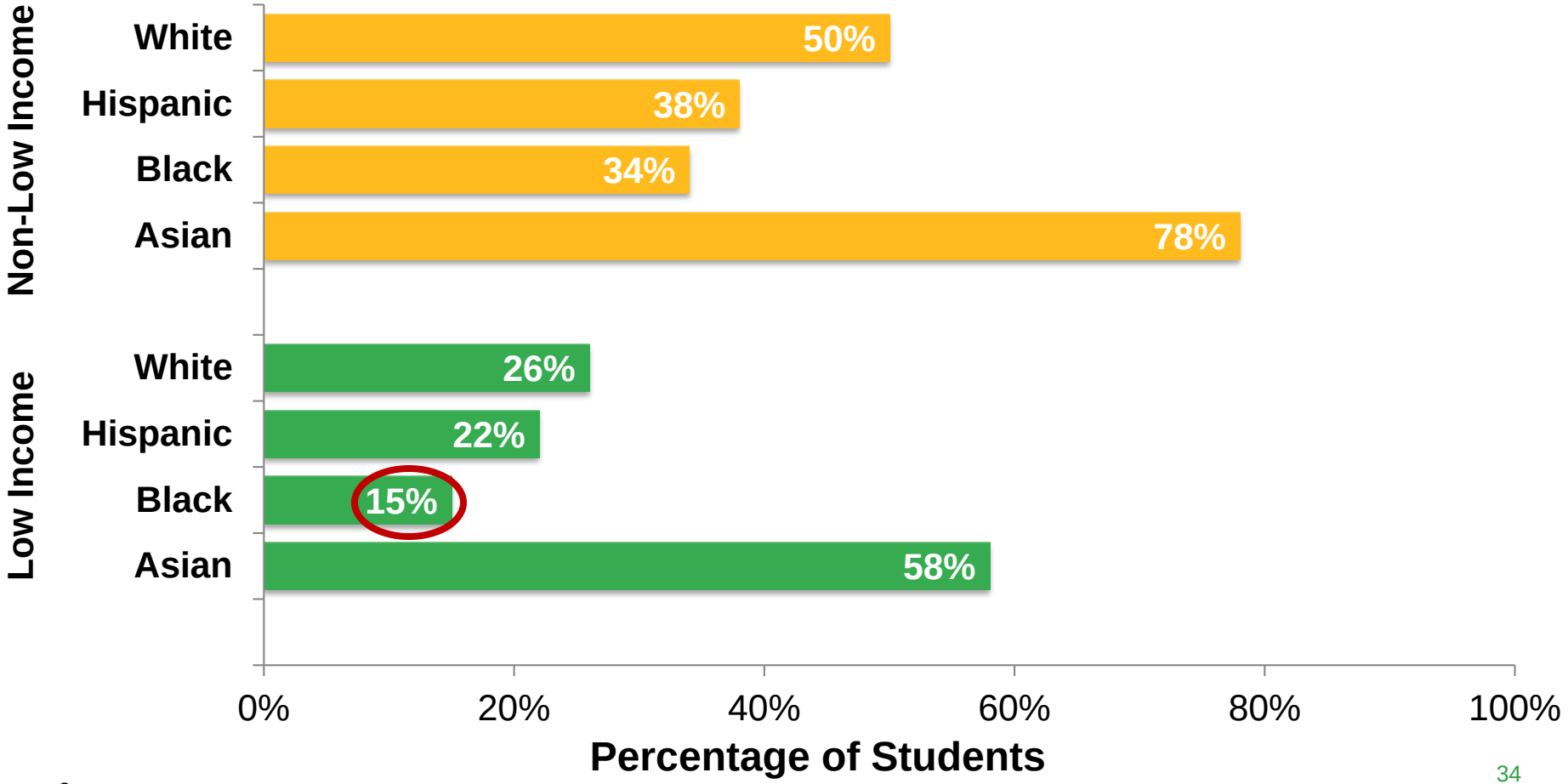
Income Gaps for Enrollment in Algebra I in 8th Persist Over Time



Note: Annual Snapshot Data of Student Enrollment in Algebra I in 8th Grade
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Enrollment Gap Exists Even for Non-Low Income Black & Hispanic Students

Percentage of Central Texas Students in 2012 5th Grade Cohort Enrolled in Algebra 1 by 8th Grade



Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

What about Passing?

Algebra I taken in Middle School in Central Texas:

- 93% Pass *both* semesters of the course
- 98% Approach Grade Level Standard
  - Standard students in cohort were held to
- 84% Meet Grade Level Standard
  - Standard students are held to now
- 58% Master Grade Level Standard!
  - College and Career Ready Standard

Sometimes equity gaps exist because of concerns that not all student can be successful…

➢ **But the data shows this isn't the case**

Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Quantitative Longitudinal Analysis

Algebra I Enrollment for Middle School Years Based on Prior Achievement (5th Grade Math STAAR)

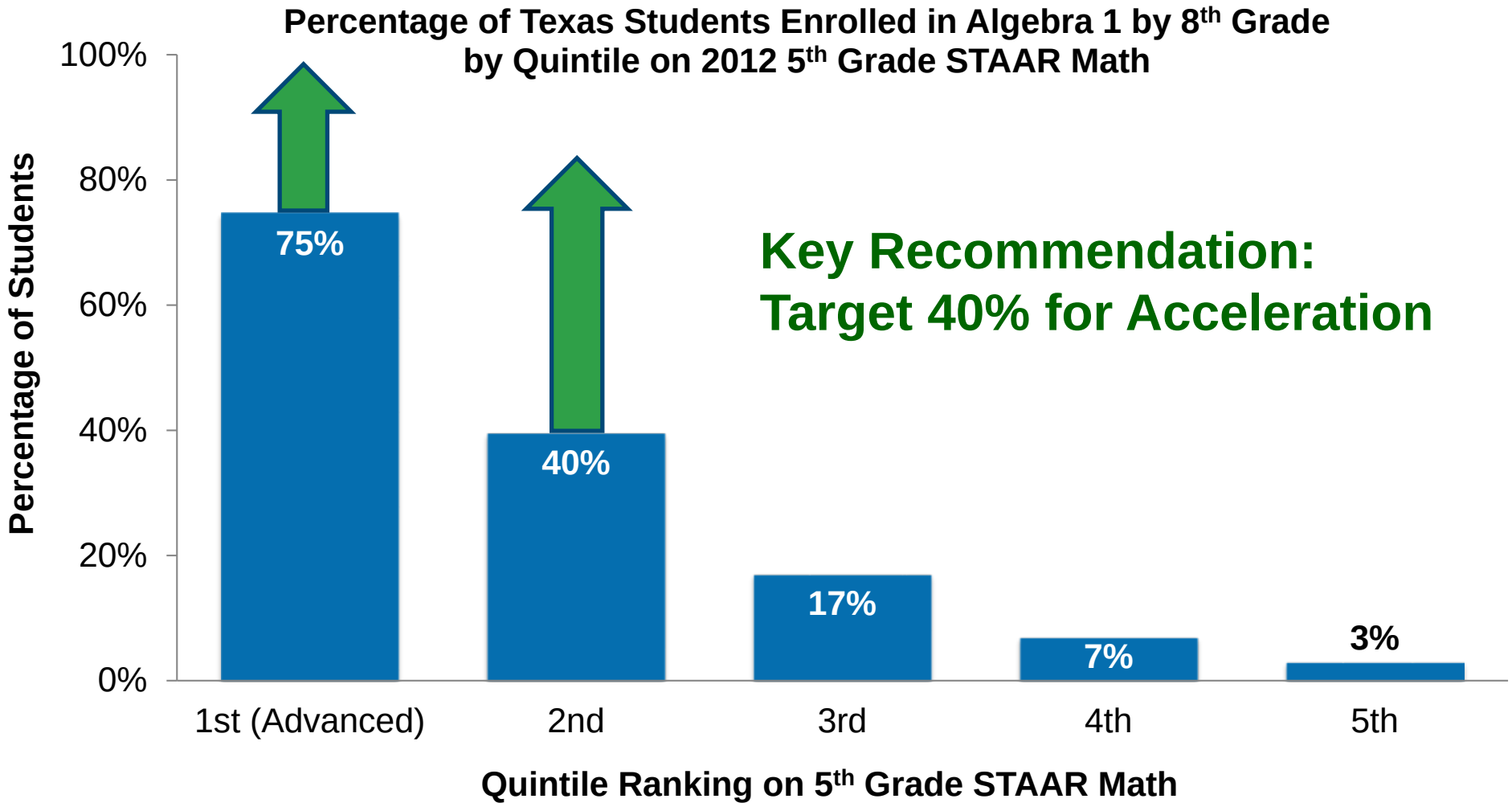
Using Quintiles to Study Outcomes of Texas Students Most Prepared in 5th Grade Math

On track for CCR

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Percent range	0% – 18%	18% - 39%	39%-58%	58%-77%	77%-100%
Scaled Score range	> 1700	> 1600 and <= 1700	>= 1542 and <= 1600	>= 1475 and < 1542	< 1475 or STAAR M
Grade Level Score Meaning	**Masters**	**Meets/ Approaches**	**Approaches**	**Approaches/ Did Not Meet**	**Did Not Meet or STAAR M**
% Low Income Texas	37%	54%	64%	72%	80%

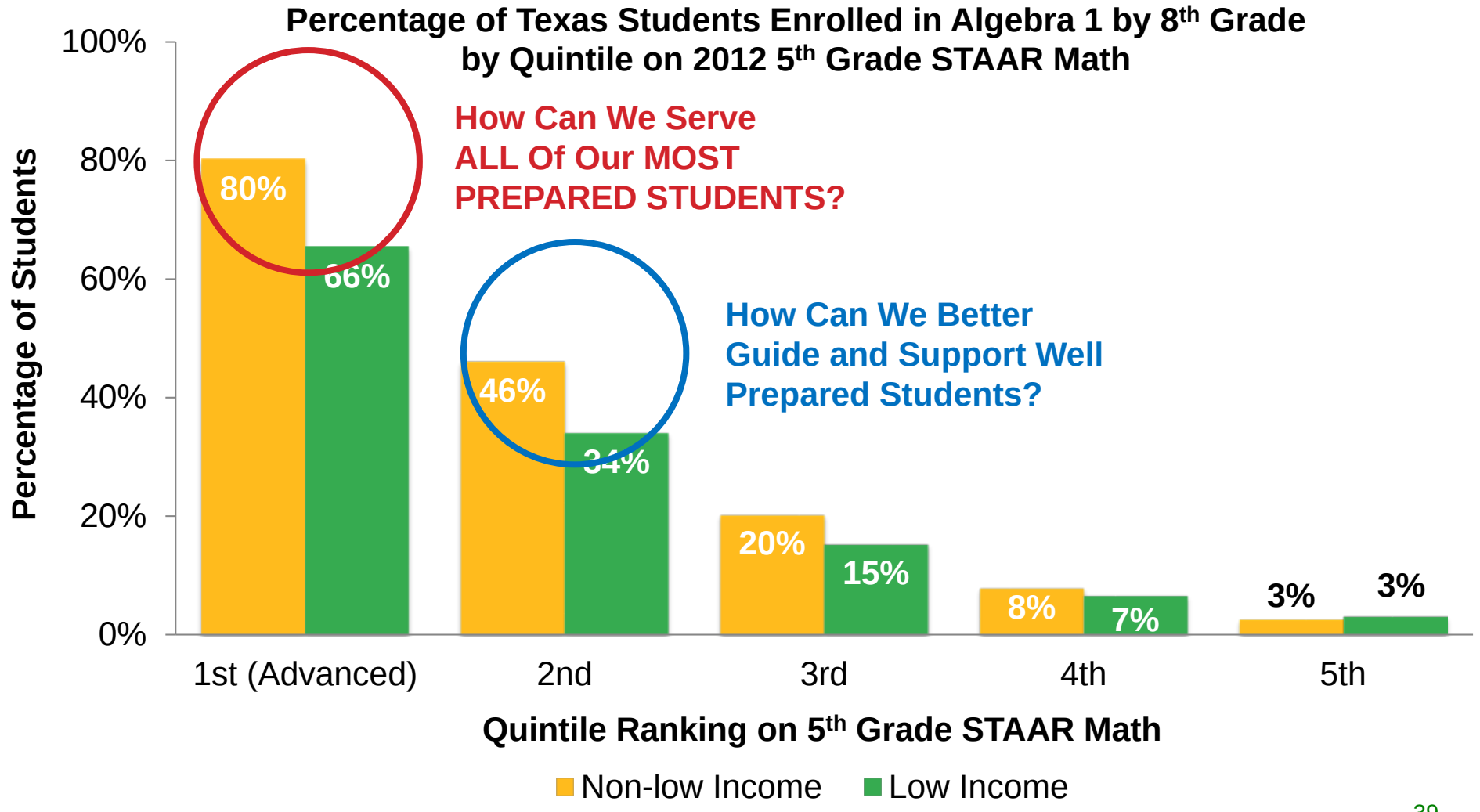
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Three-Fourths of Students at Advanced Standard in 5th Grade Reach Algebra I by 8th Grade



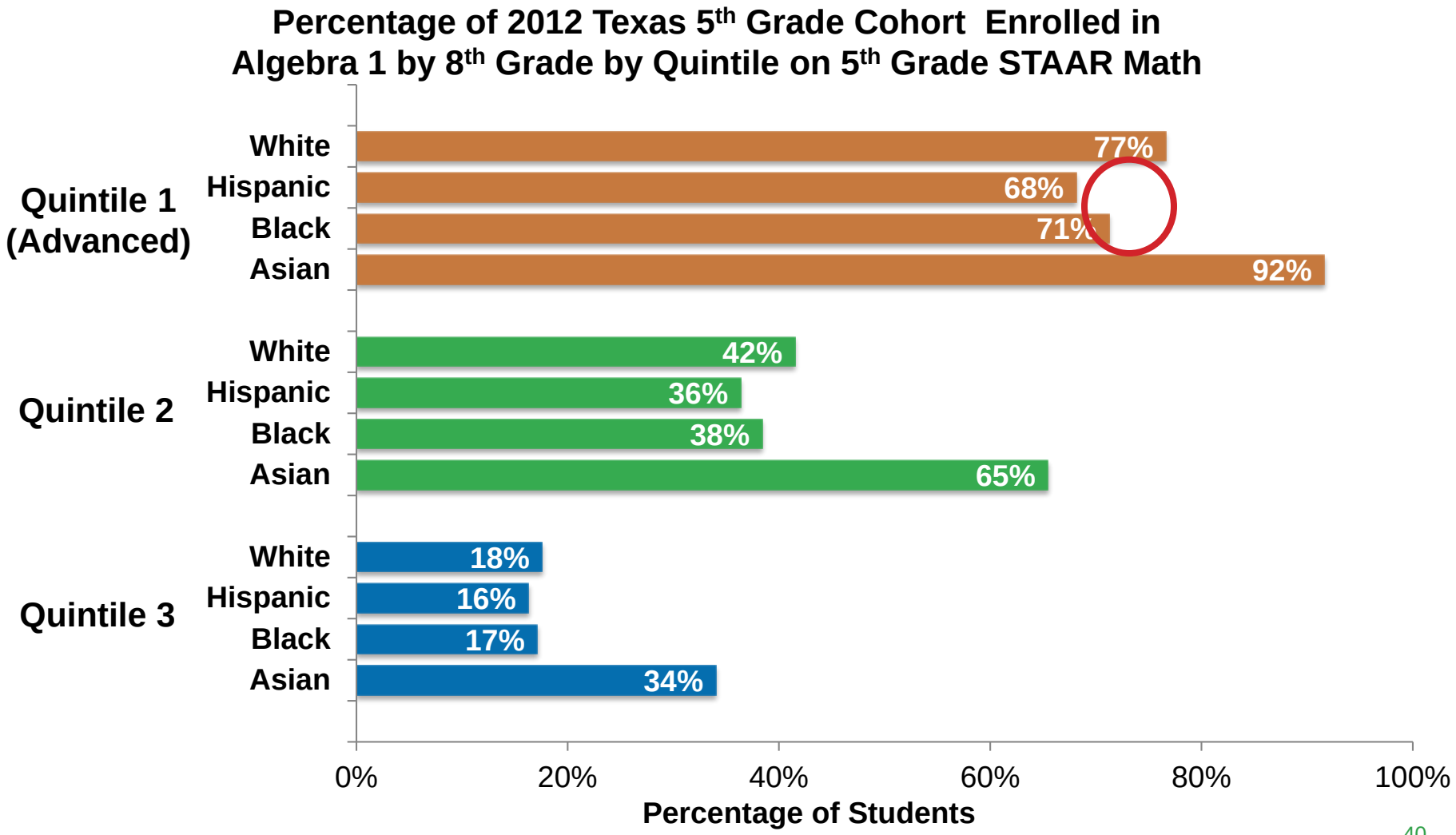
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

2/3 of Low Income Students at Advanced Standard for 5th Grade Math Were in Algebra I by 8th Grade



Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Lower Proportion of Black and Hispanic Students at Advanced Std in 5th Grade Enrolled in Algebra 1 in MS



Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Algebra 1 Timing

Student Outcomes Based on Timing of Algebra I

Algebra 1 Timing

Groups based on the timing of "successful" completion of Algebra 1

Accelerated = completed Algebra 1 *before 9th grade*

On Track = completed Algebra 1 *in 9th grade*

Behind = enrolled in Algebra 1 *after 9th grade*

Note: Used 10th grade course placement to determine if students successfully enroll in subsequent course

2013 9th Grade Cohort (Class of 2016)

Limited to students enrolled 9th & 10th grade with math in 10th

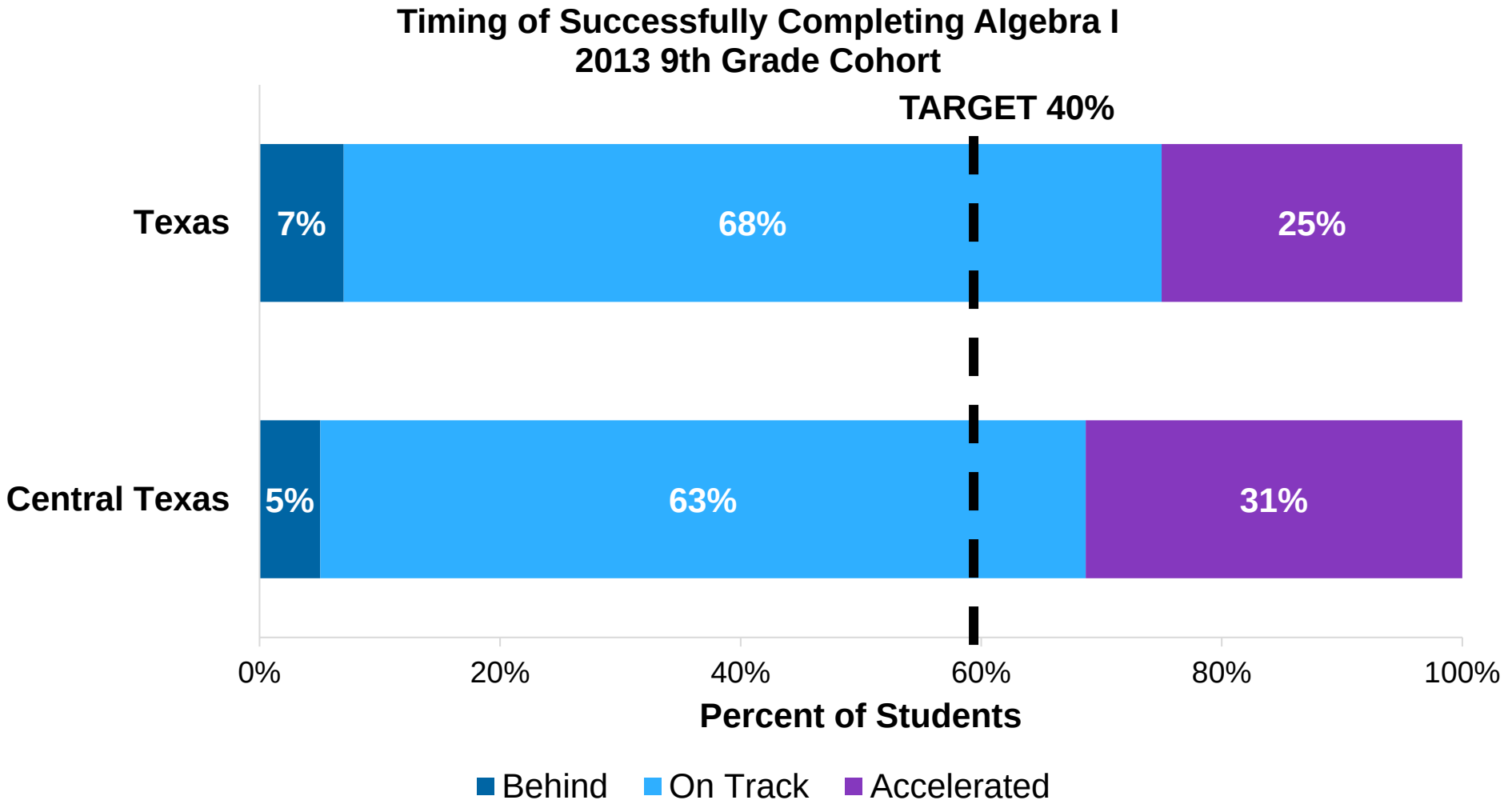
Demographic	Texas	Central Texas
Student Count	325 K	20.5 K
Low Income	68%	55%
Asian	4%	4%
Black	13%	9%
Hispanic	50%	44%
White	32%	40%

Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Algebra 1 Timing

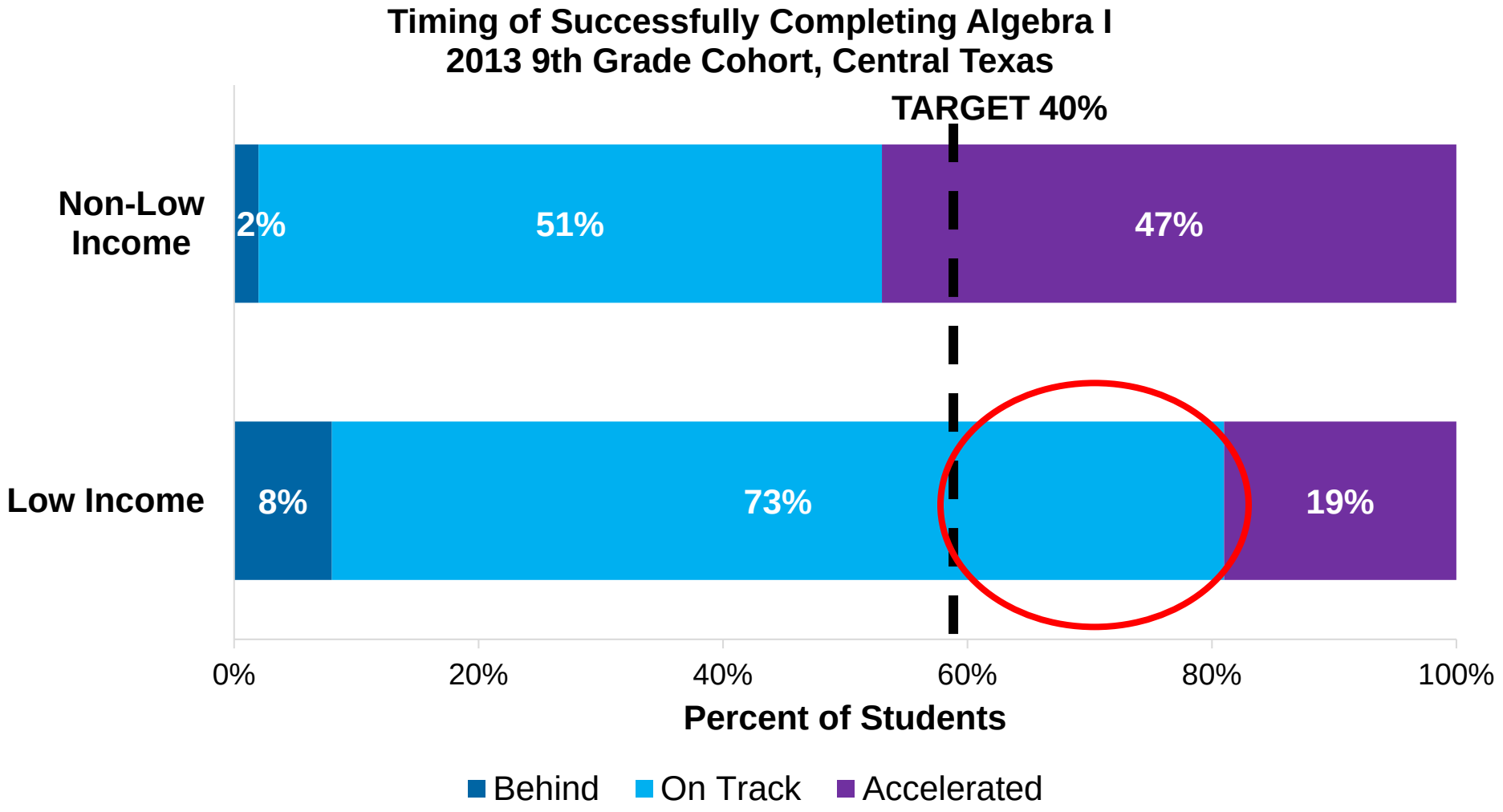
Percent of Students Behind, On Track and Accelerated

Larger % of CTX Students Accelerated in Math



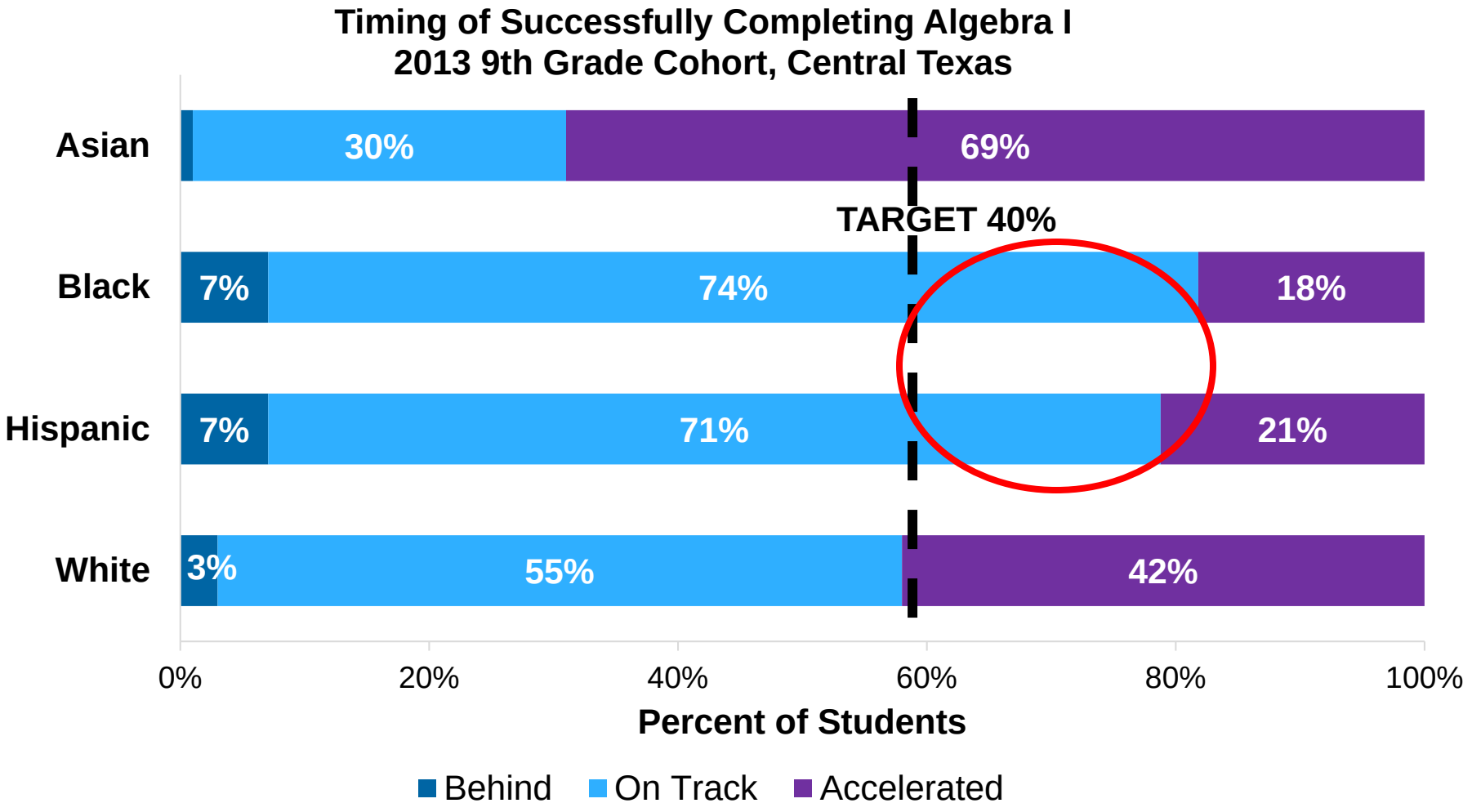
Algebra 1 Timing: Accelerated = prior to 9th grade, On Track = in 9th grade, Behind = After 9th grade
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Large Gap in Math Acceleration by Income



Algebra 1 Timing: Accelerated = prior to 9th grade, On Track = in 9th grade, Behind = After 9th grade
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Similar Rate of Asian Students Accelerated as Black and Hispanic Students On Track

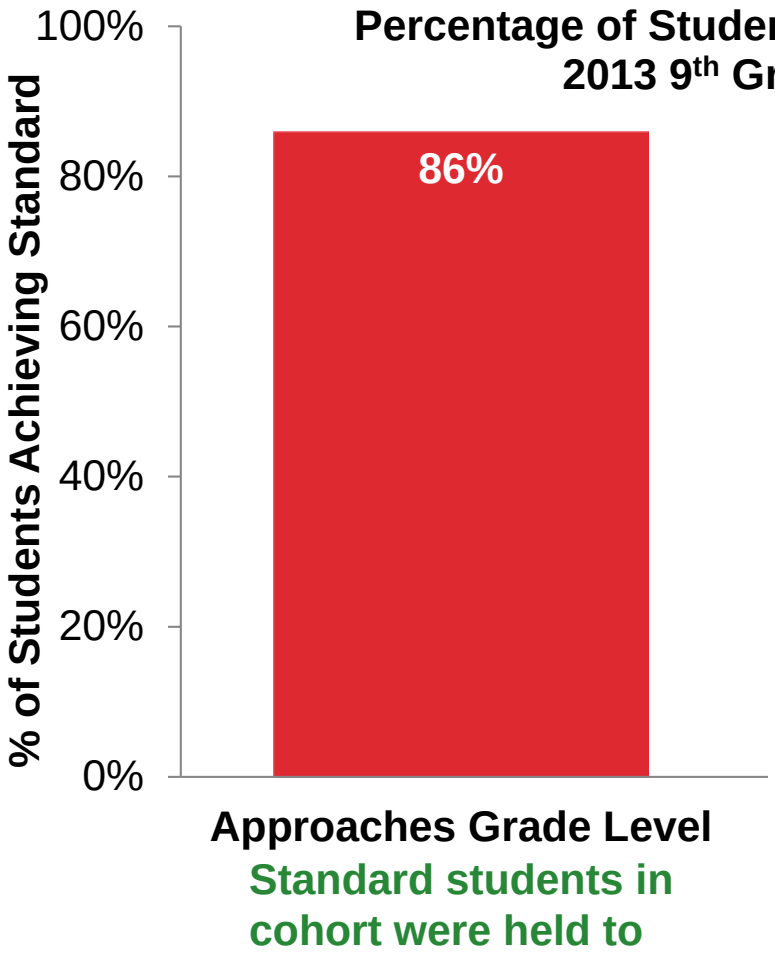


Algebra 1 Timing: Accelerated = prior to 9th grade, On Track = in 9th grade, Behind = After 9th grade
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Outcomes by Algebra 1 Timing

Algebra 1 EOC Results

Fewer Than Half of Students Would Have Reached Current Grade Level Standard



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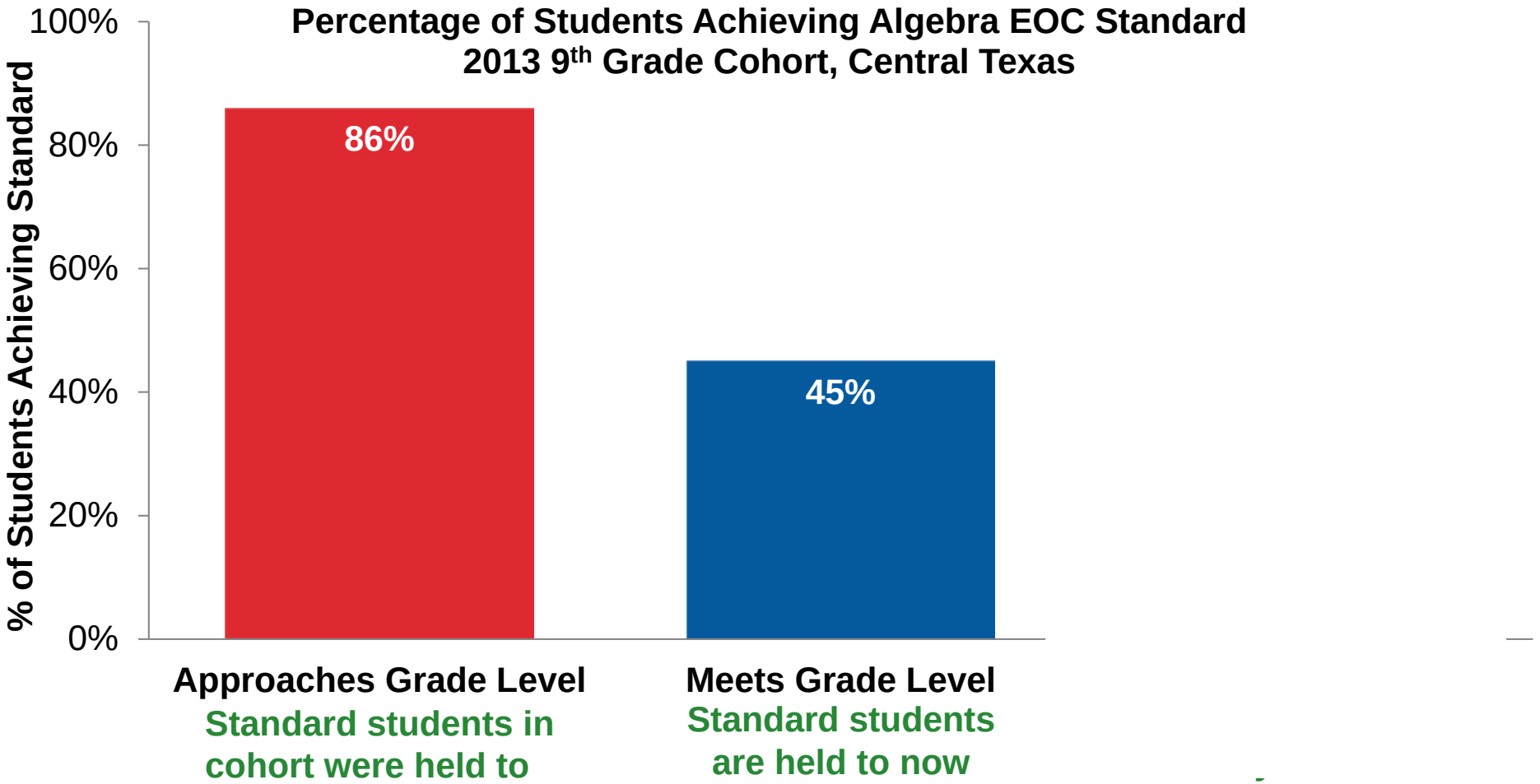

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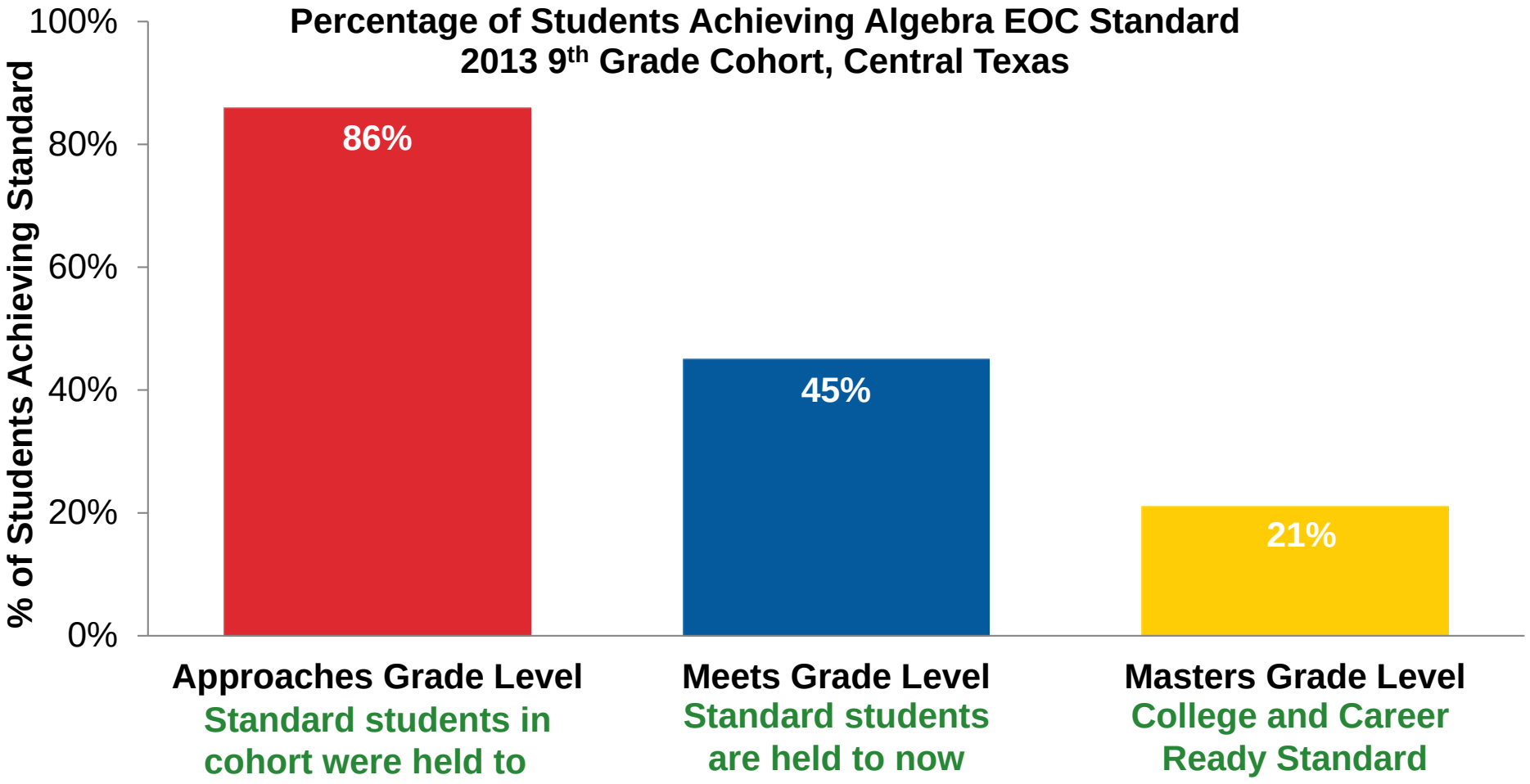
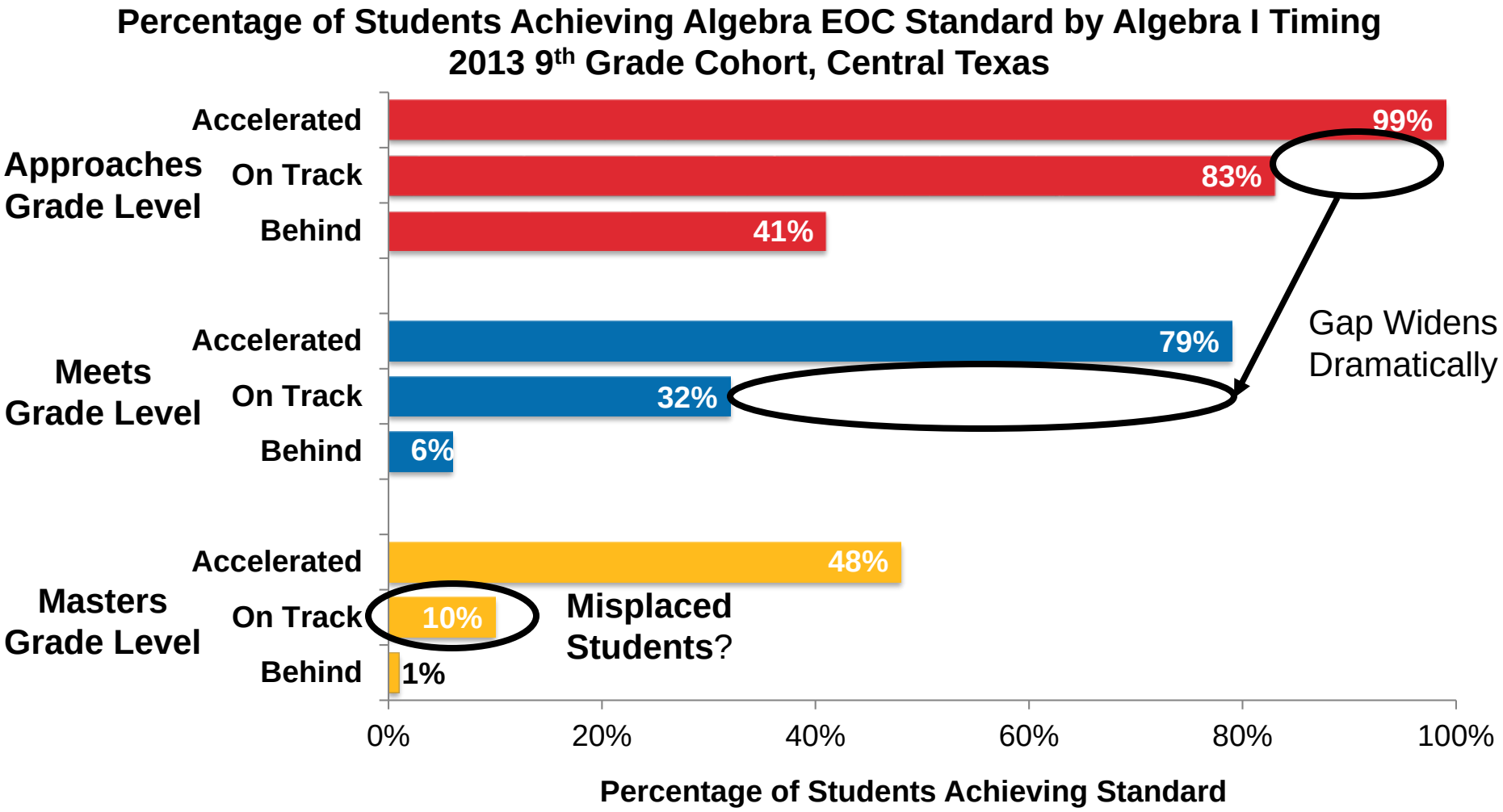


Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

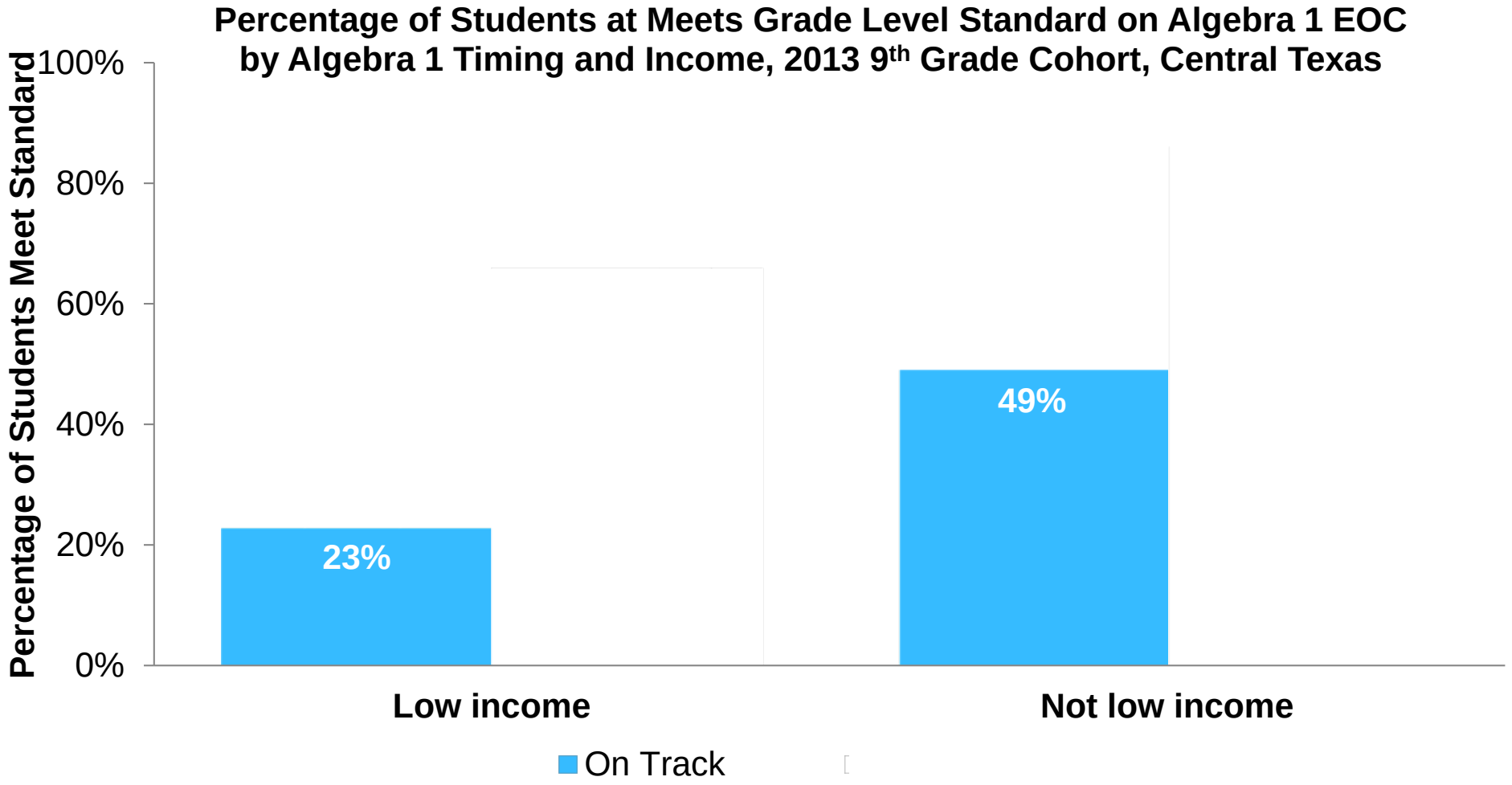
Large Differences in Algebra 1 EOC Performance Based on When Successfully Completed Course



Algebra 1 Timing: Accelerated = prior to 9th grade, On Track = in 9th grade, Behind = After 9th grade

Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Gap by Income in Percentage of *On Track* Students Who Meet Grade Level Standard on Algebra 1 EOC



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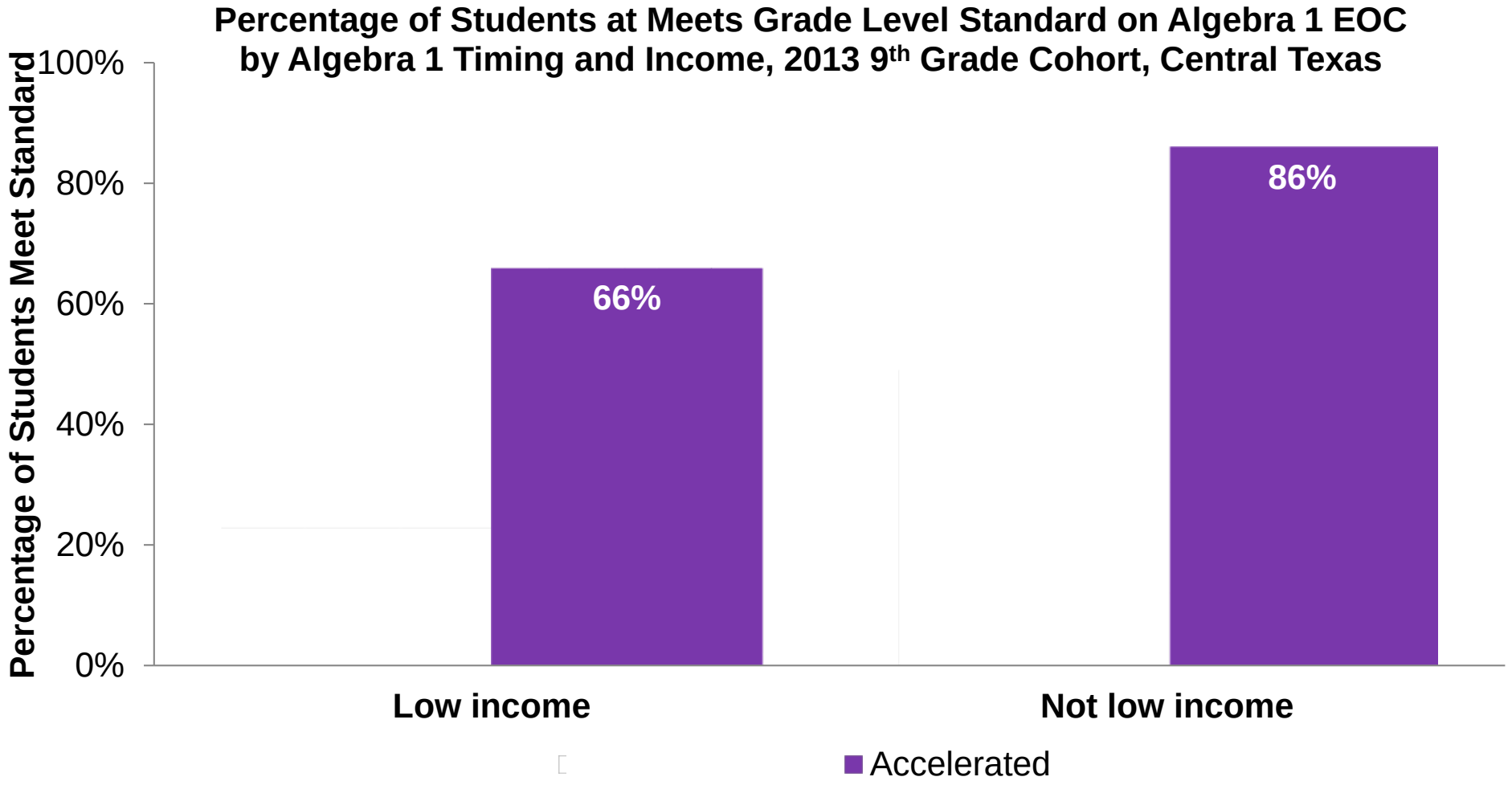
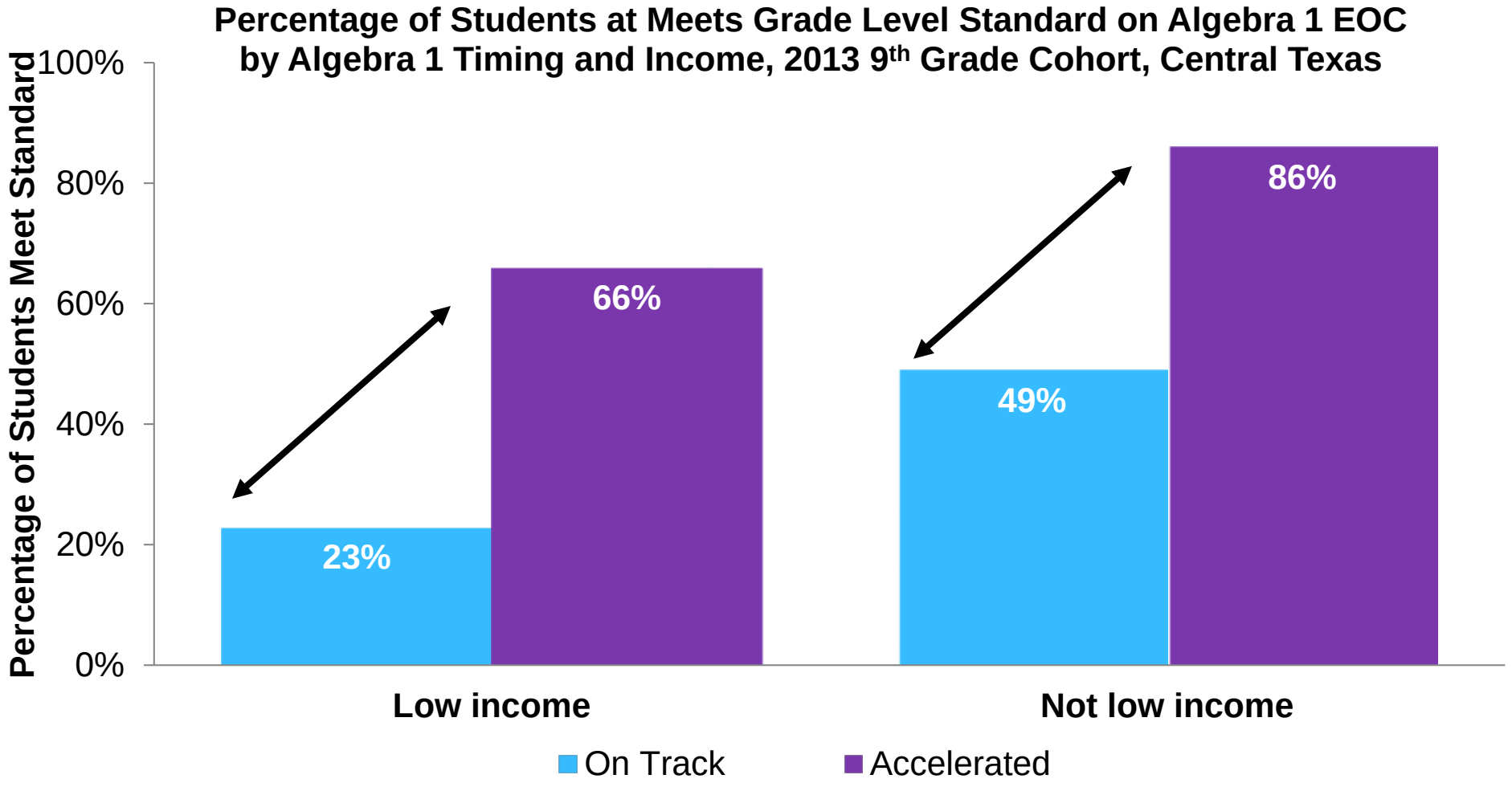
Gap by Income in Percentage of *Accelerated* Students Who Meet Grade Level Standard on Algebra 1 EOC



Algebra 1 Timing: Accelerated = prior to 9th grade, On Track = in 9th grade, Behind = After 9th grade
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Similar Gap in % at Grade Level Standard Between On Track and Accelerated Students, Regardless of Income Status



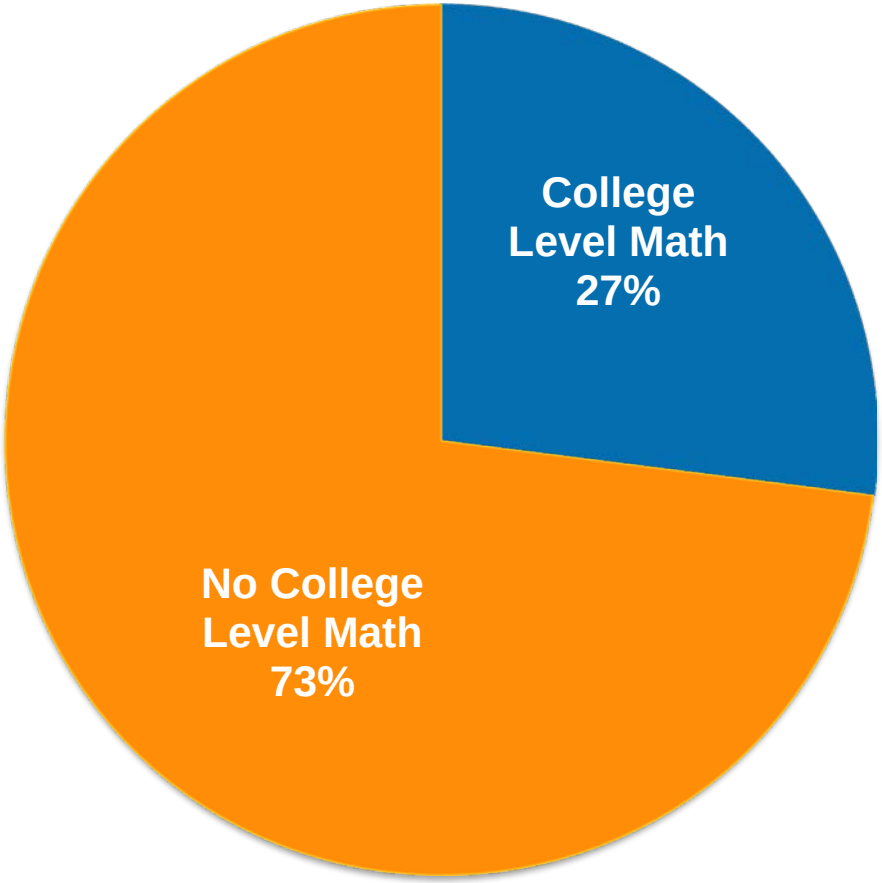
Algebra 1 Timing: Accelerated = prior to 9th grade, On Track = in 9th grade, Behind = After 9th grade
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Outcomes by Algebra 1 Timing

High School Math Course Taking – College Level Math

Over a Quarter of CTX Students Take College Level Math

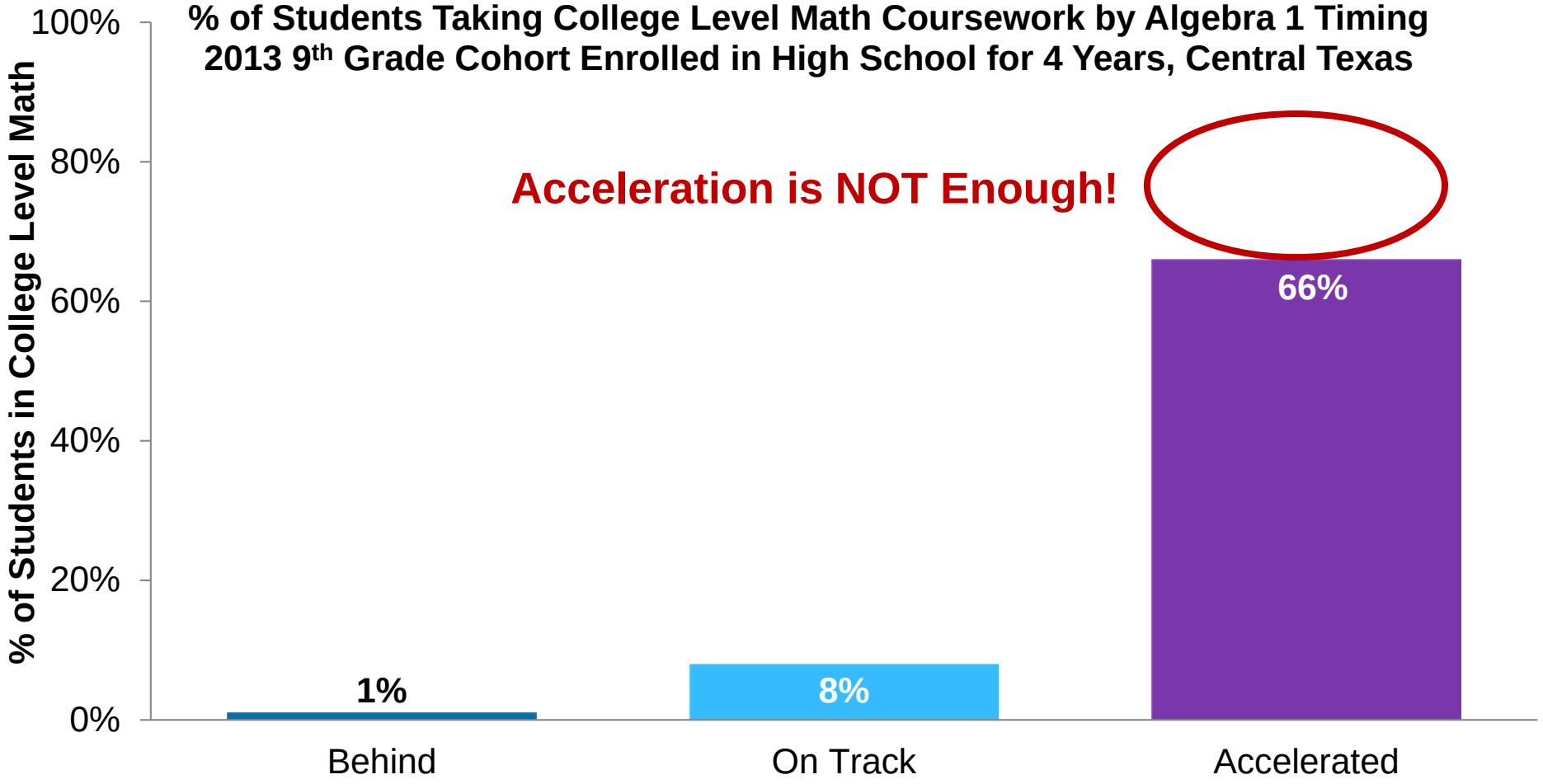
Percent of Central Texas Students Taking College Level Math Coursework
2013 9th Grade Cohort Enrolled in High School for 4 Years



College Level Math = AP, IB or Dual Credit

Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Vast Majority of Students with College Level Math in HS Were Accelerated in Math in Middle School



College Level Math = AP, IB or Dual Credit
Algebra 1 Timing: Accelerated = prior to 9th grade, On Track = in 9th grade, Behind = After 9th grade
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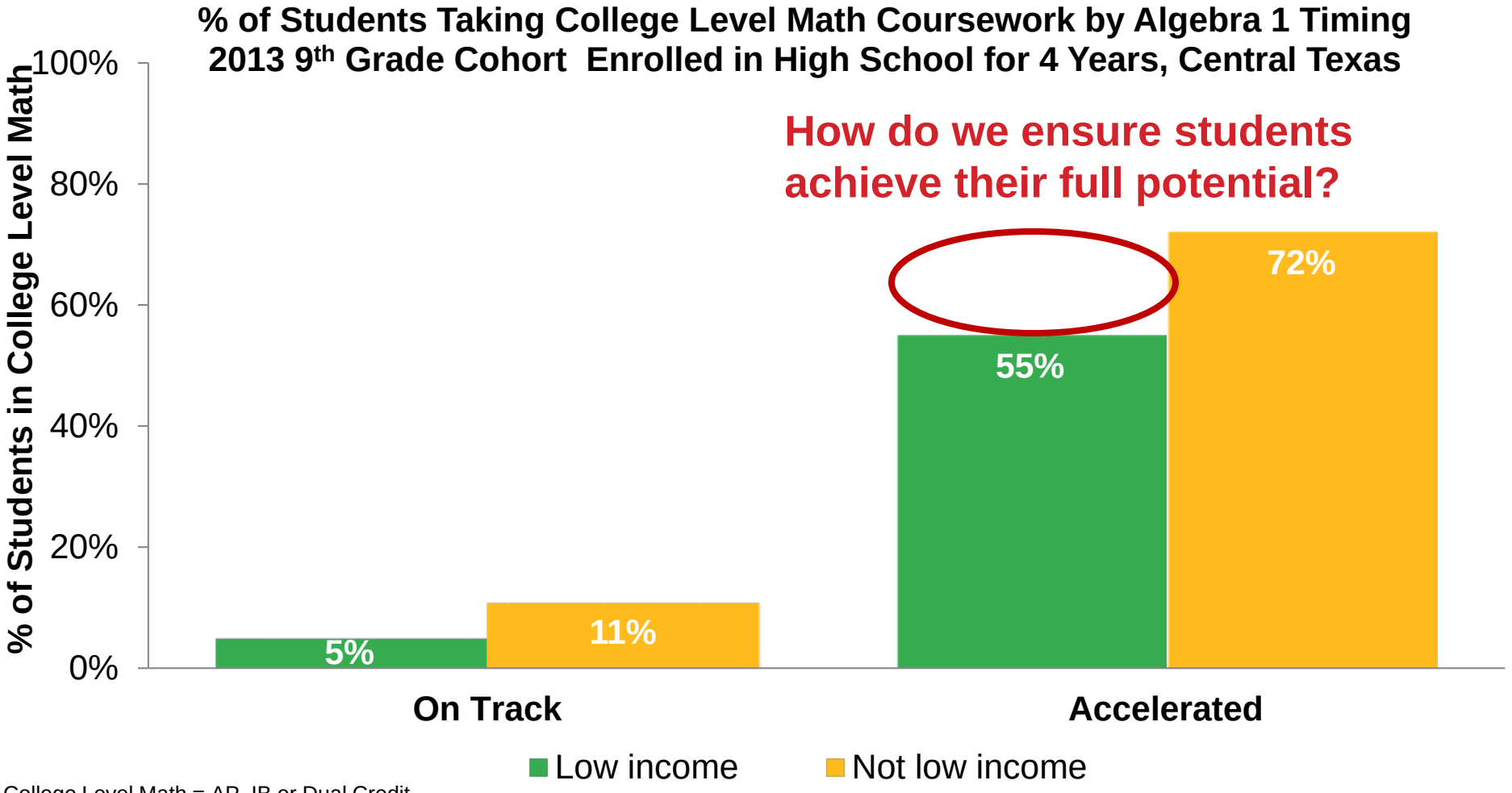
Who Takes College Level Math in High School is Primarily About Middle School Acceleration



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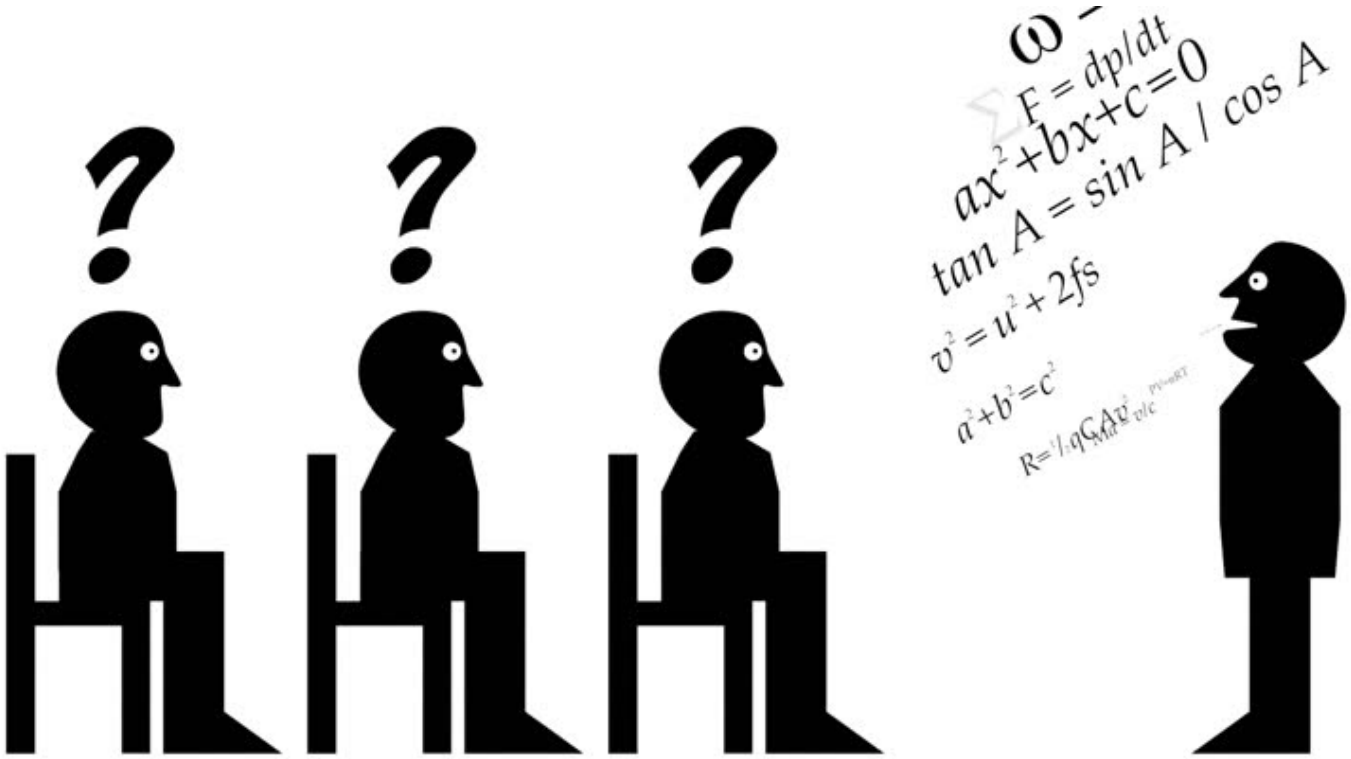
Source: E3 Alliance analysis of PEIMS data at the UT Austin Education Research Center

Questions from the Audience



Recommendations for Building Strong Math Pathways

Pathways of Promise Steering Committee

LOCKHART ISD

Hays CISD

EANES ISD
AUSTIN, TEXAS

ROUND ROCK ISD

The University of Texas at Austin
Center for STEM Education
College of Education

How Does Our Region Get There?
District Policies to Drive Consistency Across Schools

- **District-Wide Acceleration Policies:** Automatic enrollment for *well prepared* transitioning into middle school
  - "Opt out" policy for Top 40% of academically prepared
  - Implement standardized process to identify students likely to be successful in more rigorous math pathway
  - Push student selection process down into 5th grade
  - All other families notified of open enrollment; "opt in" policy
- **Early Math Focus:** Intentional supports in PK-3 to prepare for acceleration

How Does Our Region Get There?
District Leadership – Curriculum and Alignment

- **Systemic Approach:** Coordination across grade levels to guide students into rigorous math
  - Planning across grades to increase % taking accelerated and Advanced Math
  - Enact "open enrollment" policies in Advanced Math in HS
- **Supports:** Redesign math curriculum & build bridge programs to support student entry into accelerated math
- **Measure Success:** Utilize data-driven approach to measure "success" of acceleration
  - % 8th graders in accelerated pathway
  - % accelerated reaching CCR standards on Algebra I EOC
  - % taking college level (AP/IB/Dual) math course in HS

How Does a Campus Get There?

- **More Time for Math:** 90 minutes+ in ES
- **Innovative Scheduling:** Use tutorial time (ES) or double-block instruction (MS) for time to support accelerated cohort
- **Build Capacity of Math Team**
  - Hire workforce of "Highly Qualified" math teachers
  - Professional Development focused on 1) content expertise and 2) pedagogy to develop strategies for helping students access content "where they are"
  - Incorporate capacity-building strategies to leverage Professional Learning Communities

How Does a Campus Get There?

- **Advising to Support Acceleration**
  - Target " opt into" advising efforts in 5th and 8th grade
  - Identify wrap-around supports for students when course gets "tough"
  - Messaging to students & families
    - Algebra 2 + *more* math
    - 4 years of math in 4 years of high school
- **Campus-based plan for students not college and career ready by 12th grade**
  - Math College Prep Course or Algebra 2

E3 ALLIANCE
EDUCATION EQUALS ECONOMICS

Recommendations For All Campuses

Recommendations for Elementary Schools For Building Strong Math Pathways

The Goal

Start in early grades (PK through 2nd grade) to implement strong mathematics teaching to equitably prepare as many students as possible to enter accelerated math pathway by 6th grade.

Why It Matters

Mathematics performance in early grades is a strong predictor of postsecondary readiness and success.

Even our BEST performing Black, Hispanic, and low-income 5th graders are under-placed into accelerated math pathways.

Students who do not take Algebra I by 8th grade are far less likely to enroll in college level math in high school – a strong predictor of college success.

What To Measure

- % of 3rd graders achieving Meets and Mastery level for mathematics on state assessment, by student group (income, ethnicity)
- Identify students by quintile on state math assessment in 4th and/or 5th grade to inform student placement into accelerated math pathway
- % of 5th graders placed into accelerated math in middle school, by student group (income, ethnicity)
- Measures of academic growth in mathematics to assess gains for targeted populations in grades 3-5, including shrinking equity gaps

Vision of Success

- Steady and significant increases in placement and prepared accelerated math pathw
- Students placed in acc are representative of demographics (incom
- All students receive solving based instru thinking
- Culture of high exp

How Do We G

- ☑ Engage families, students of enr mathematics a home
- ☑ Place every st grade math p math pathw out" (Target
- ☑ Encourage in" as app
- ☑ Develop "opt in" knowled
- ☑ Recruit conten mathe so tha quali
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Improving Equity and Driving Degree Completion Through Acceleration in Mathematics

Recommendations for Middle S For Building Strong Math Pathv

The Goal

Eliminate existing equity gaps in middle school math acceleration while ensuring strong math pathways for all through high school and beyond.

Why It Matters

The 8th grade equity gap across Texas is wide – fewer than half as many low-income enroll in Algebra I by the end of 8th grade, compared to their non-low-income peers (18% versus 40%)

There has been no change in the income or ethnicity gap for students taking Algebra I by 8th grade over the past 5 years - only with intentional focus and strategies will we address this gap.

Students who do not take Algebra I by 8th grade are far less likely to enroll in college level math in high school – a strong predictor of college success.

What To Measure

- % of 8th graders enrolled in Algebra I or higher, by student group (income, ethnicity)
- % of 8th graders achieving Meets and Masters standard on the Algebra I End of Course assessment, by student group (income & ethnicity)
- Measures of academic growth in mathematics show positive gains for targeted populations in grades 6-8, leading to a decline in equity gaps

Vision

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- Eq mi ac e
- A s

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- ☑

Improving Equity and Driving Degree Completion T

Recommendations for High Schools For Building Strong Math Pathways

The Goal

For every student to graduate college and career ready in mathematics and on track for earning a postsecondary credential.

Why It Matters

Students who do not take Algebra I by 8th grade are far less likely to enroll in college level math in high school – a strong predictor of college success.

Only 1 in 5 students who pass Algebra II (now optional for most Texas students) will obtain any type of college credential (vocational, associates, or bachelor's) within 6 years.

Students who take any college level math before high school graduation are 3 times more likely to earn a college credential than students whose highest math course is Algebra II.

What To Measure

- % of 9th graders achieving Meet and Masters standard on the Algebra I End of Course assessment, by student group (income & ethnicity)
- Measures of academic growth in mathematics show positive gains for targeted populations in Algebra I, leading to a decline in equity gaps
- % of students (overall, and by student group) taking math in Algebra II
- % of students (overall, and by student group) taking math BEYOND Algebra II
- % of students college ready in math as indicated by meeting TSI

Data from UT Austin Education Research Center; the conclusions of this research do not necessarily reflect the opinions or official position of the Texas Education Agency, the Texas Higher Education Coordinating Board, or the State of Texas.

Vision of Success

- Students take math each year of high school
- Steady and significant increases in students taking advanced mathematics, including college level math (Advanced Placement, International Baccalaureate, or dual credit)
- Equitable distribution of low-income and minority students represented in advanced mathematics
- Culture of high expectations for all students

How Do We Get There?

- ☑ Advocate for a systemic approach and planning across grade levels to encourage and support more students to take advanced mathematics, including counselor training
- ☑ Message clearly to students, families and staff, that Algebra II or equally rigorous equivalents, plus *more* advanced math, is critical for postsecondary completion
- ☑ Advise all students to take 4 years math in high school, taking the most advanced math possible and aligning course selections with career aspirations
- ☑ Implement district-wide policy for "open" enrollment in advanced mathematics
- ☑ Invest in, and enact policies, that build content expertise and pedagogy in high quality math instruction
- ☑ Develop a campus-based plan for students who are not college ready by 12th grade

Improving Equity and Driving Degree Completion Through Acceleration in Mathematics

Data-Driven Approach to Improve Equity

Data Dashboard: Tool to Support District and Campus Equity Dialog

Dashboard to Determine Equitable Acceleration Practices by 8th Grade

	Student Enrollment in 8th grade	# Students Enrolled in Algebra 1 in 8th Grade	# Students Enrolled in Math *Beyond* Algebra I in 8th Grade	Total # of Students Accelerated in 8th Grade Algebra I + Beyond	% of Students Accelerated in 8th Grade Total Students Accelerated ÷ Enrollment	Variation from Target 40% Accelerated – 40%	% of Students Accelerated Reaching Mastery on Algebra I EOC
Campus 1							
Asian							
Black							
Hispanic							
White							
Low Income							
Non-Low Income							
Female							
Male							
Campus 2							
Asian							
Black							
Hispanic							
White							
Low Income							
Non-Low Income							
Female							
Male							
Campus 3							
Asian							
Black							
Hispanic							
White							
Low Income							
Non-Low Income							
Female							
Male							

Today's Featured Panelists

Terrence Eaton, Ph.D.

Associate Superintendent for Middle Schools,
Austin ISD

Mark Estrada

Assistant Superintendent for Curriculum & Instruction,
Lockhart ISD

Jason Hewitt, Ed.D.

Chief Academic Officer for Secondary Schools,
Bastrop ISD


Time for
action!

What Can You Do This Week?

Share the Data and Make an Action Plan

- Retrieve Report & Recording Here: http://e3alliance.org/high-school-college-and-career-success/
- Convene your network => Recording => Dashboard =>Next Steps

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Thanks to Our Sponsor and Community Partners Joining Us Today!

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LOCKHART INDEPENDENT SCHOOL DISTRICT

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Thank You!

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