

Rigorous Tests of Student Outcomes in CTE Programs of Study: 4-Year Preliminary Results

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Research Questions

- To what extent does POS participation increase student:
 - academic achievement?
 - technical skills achievement?
 - high school completion?
 - employability?
 - completion of coursework leading to college credits?
- How do POS differ from the traditional high school experience at the schools that the comparison group students attend?

Participating Districts/Schools

- **West** - Three POS high schools:
 - wall-to-wall tech-focused academies
 - former career center with upgraded academics
 - new specially designed facility with PBL focus
- **East** – One POS high school:
 - wall-to-wall tech-focused academies
- **South** – POS as career academies in many high schools
- Sample program areas: Biotechnology, IT, Automotive, Pre-engineering, Health Occupations, CADD

Study Design

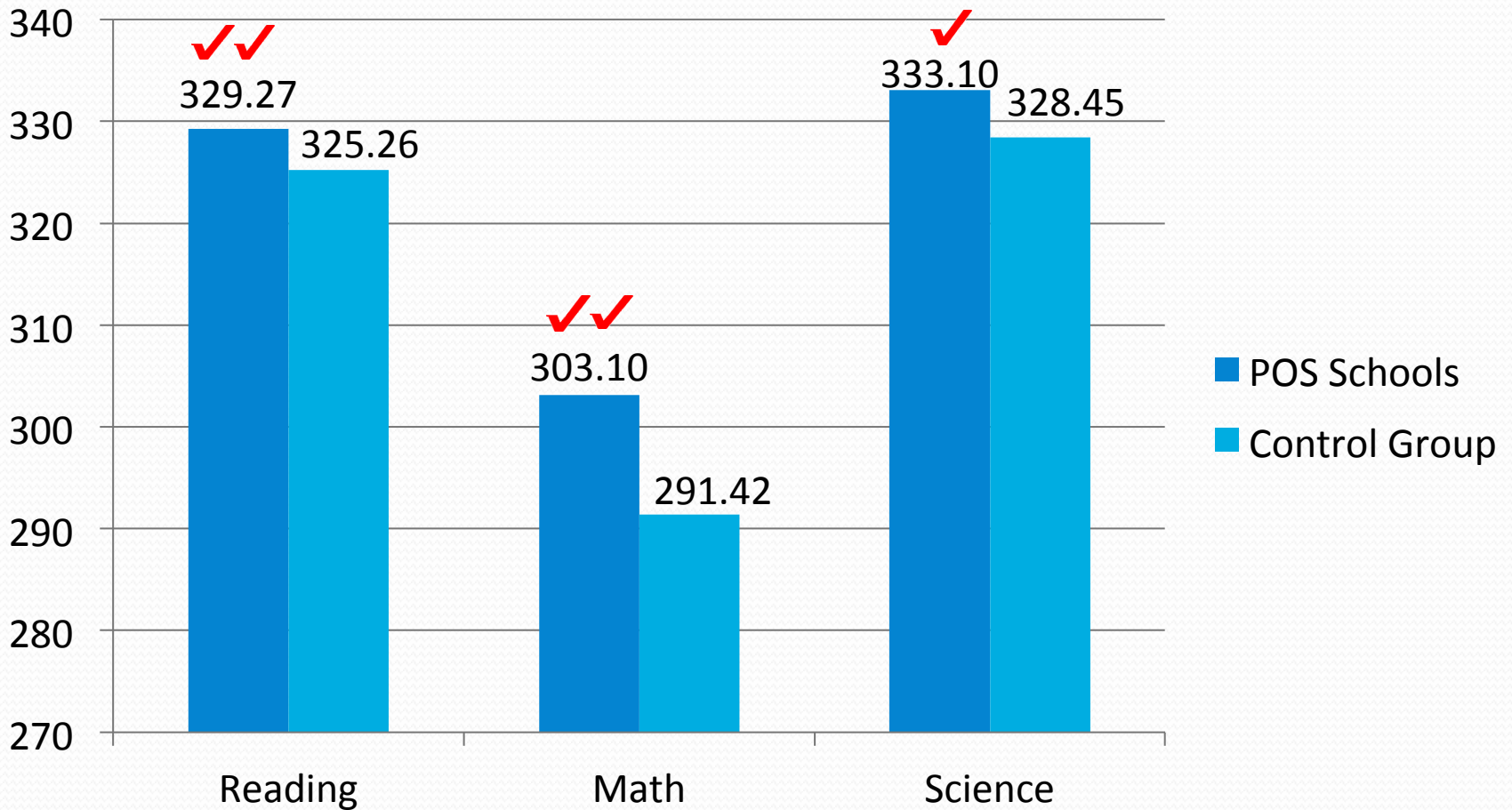
- *Longitudinal*: 2008-09 9th graders through 4 years of HS
- *Mixed-method*:
 - 3 quasi-experimental strands, 2 based on district lottery results, all use a well-matched comparison group (PSM)
 - Outcomes are analyzed in the context of our field research at treatment and control sites
- The lottery-based samples were not fully randomized, but they only included applicants, thus minimizing unobserved internal validity threats (i.e., interest, motivation to complete POS)

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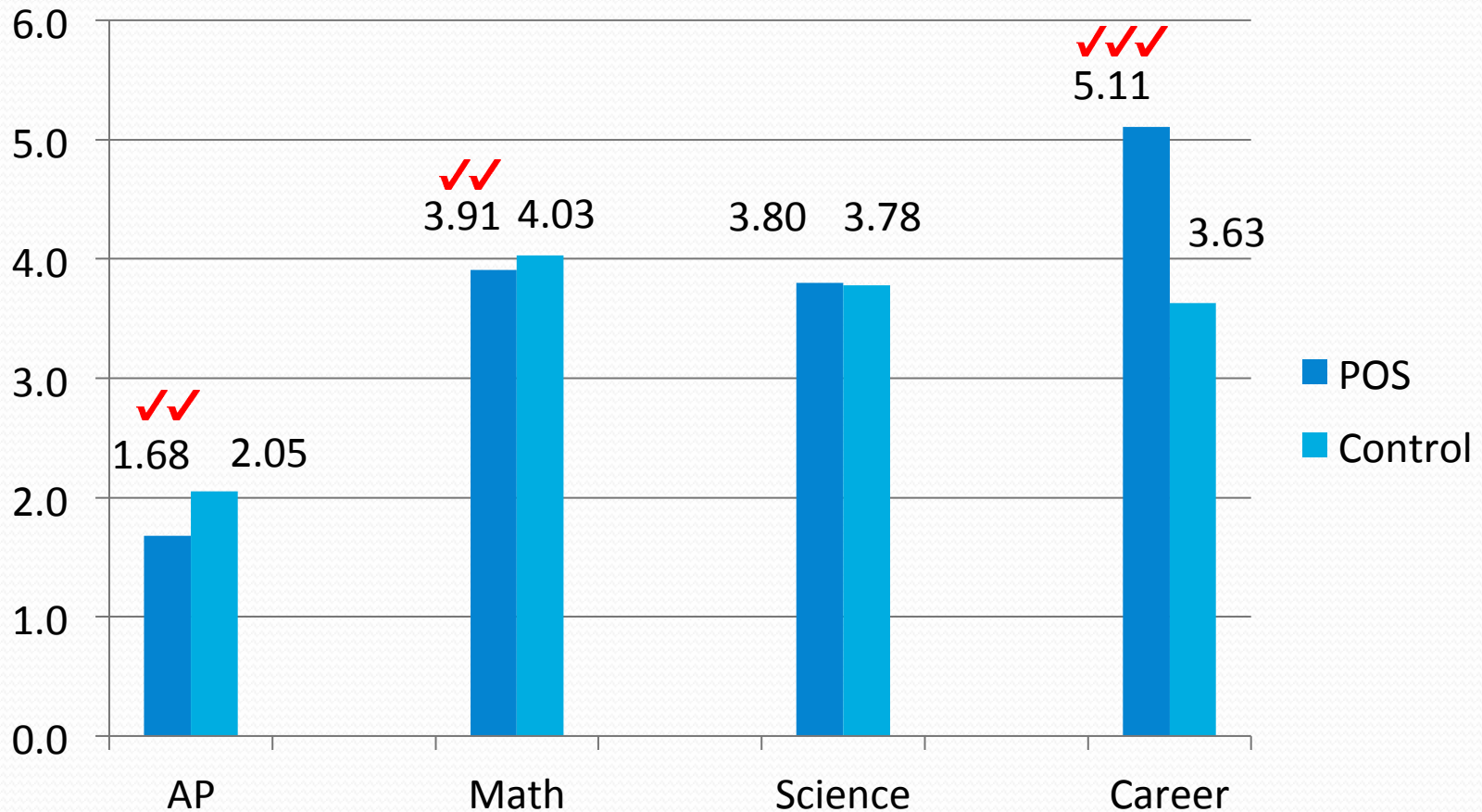
Method

- Quantitative analyses
 - Anonymized systems data collected from district
 - *T* tests, *chi*-squares, ANCOVA to date
 - Future: posthoc analyses including program effects, at-risk
- Qualitative analyses
 - Whether the programs are or are not POS based on interviews and course sequence analysis
 - Presence/absence of 10 components of Perkins policy guidance
 - Other themes from coding/data reduction (i.e., school culture, student lived experience)

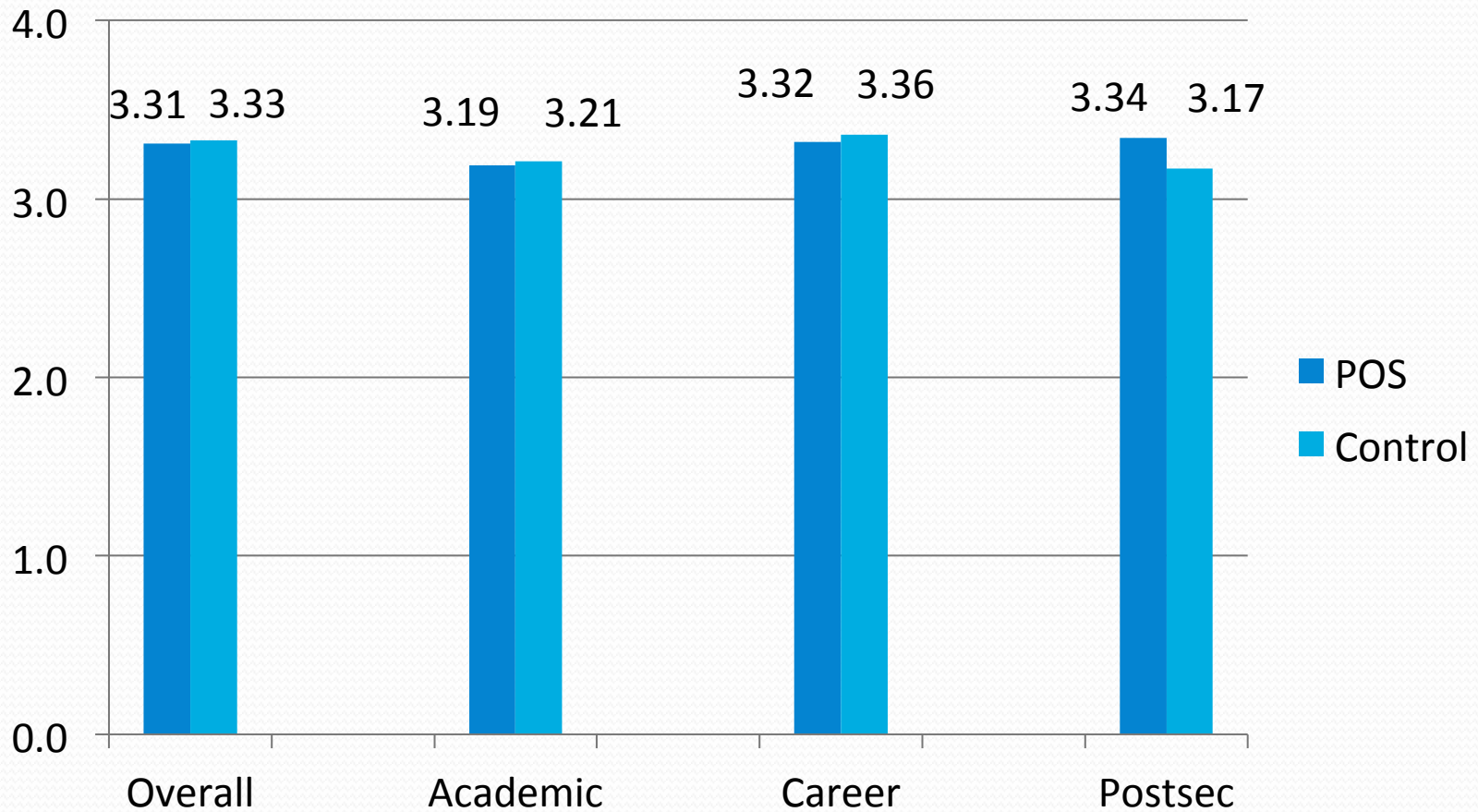
West District 10th Grade Test Scores



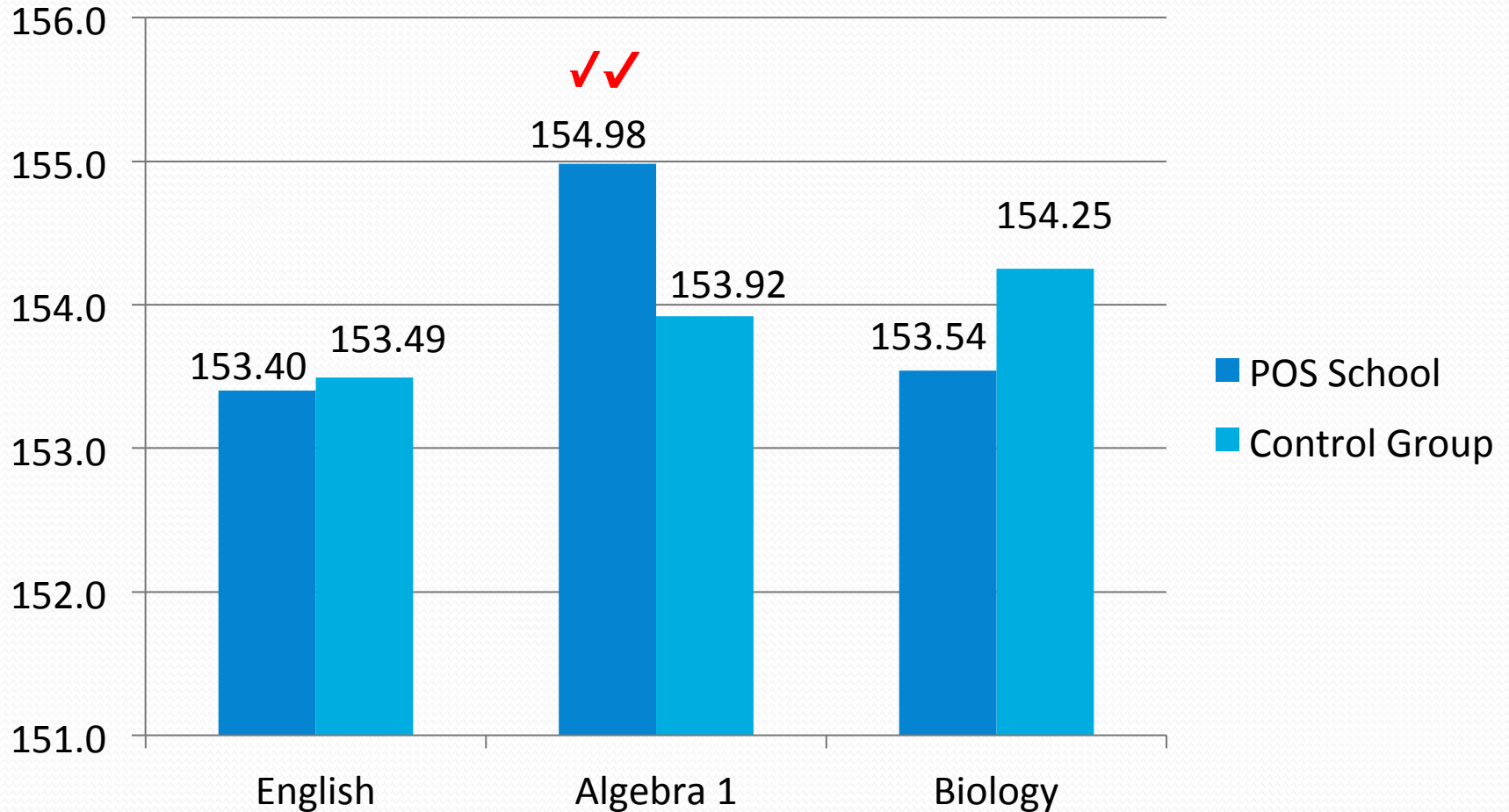
West District Credits Earned



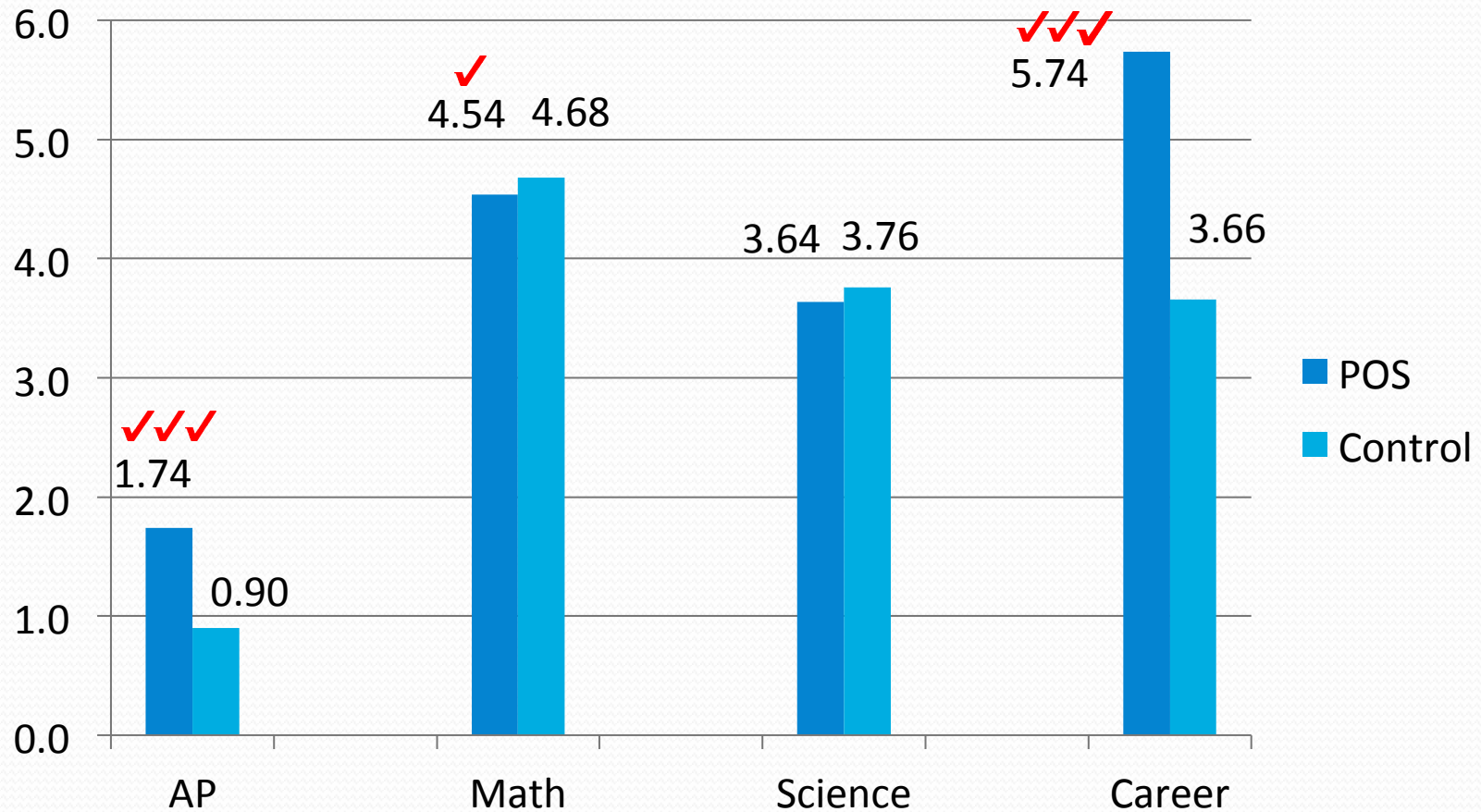
West District Cumulative GPAs



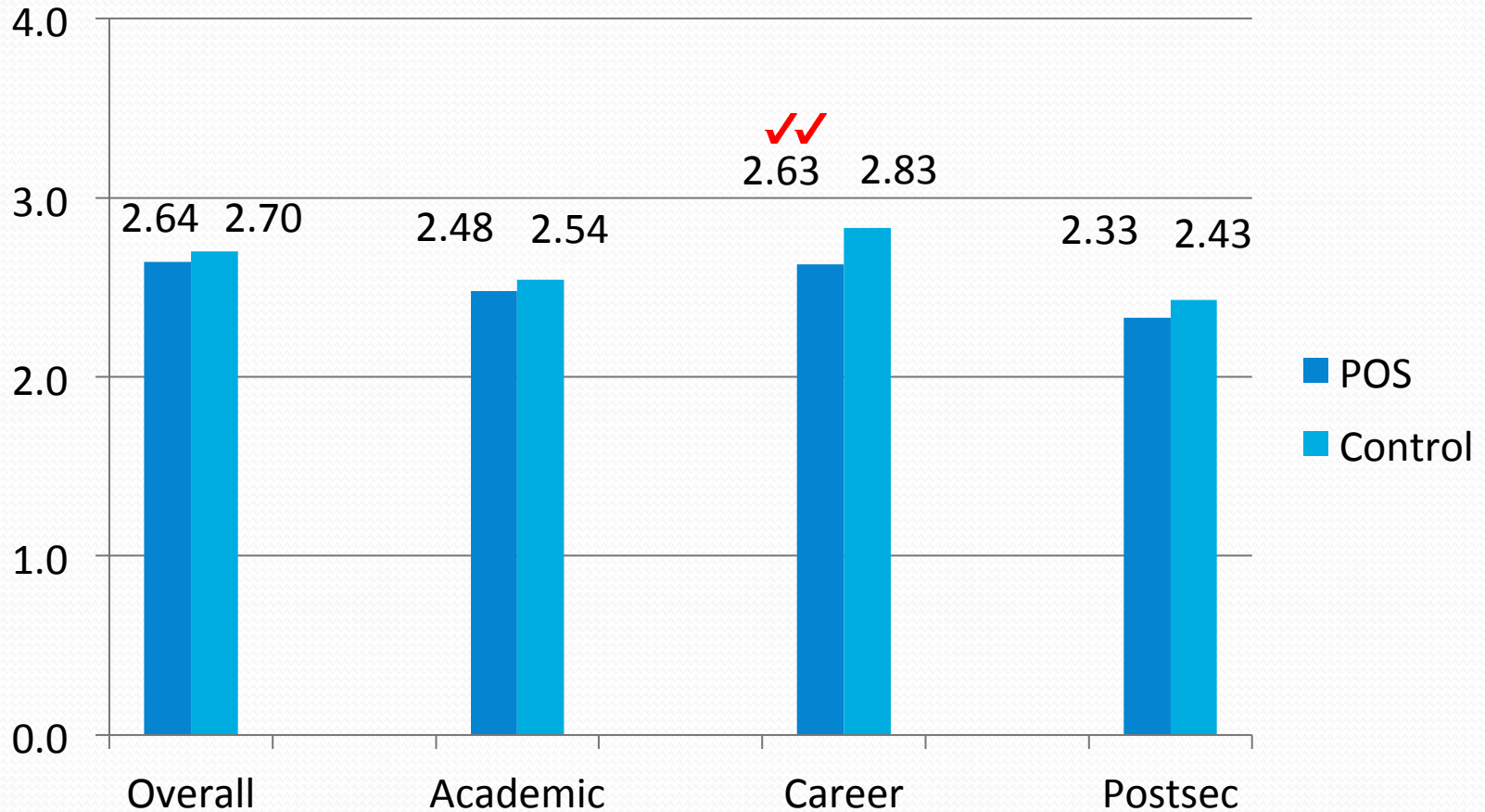
East District 10th Grade Test Scores



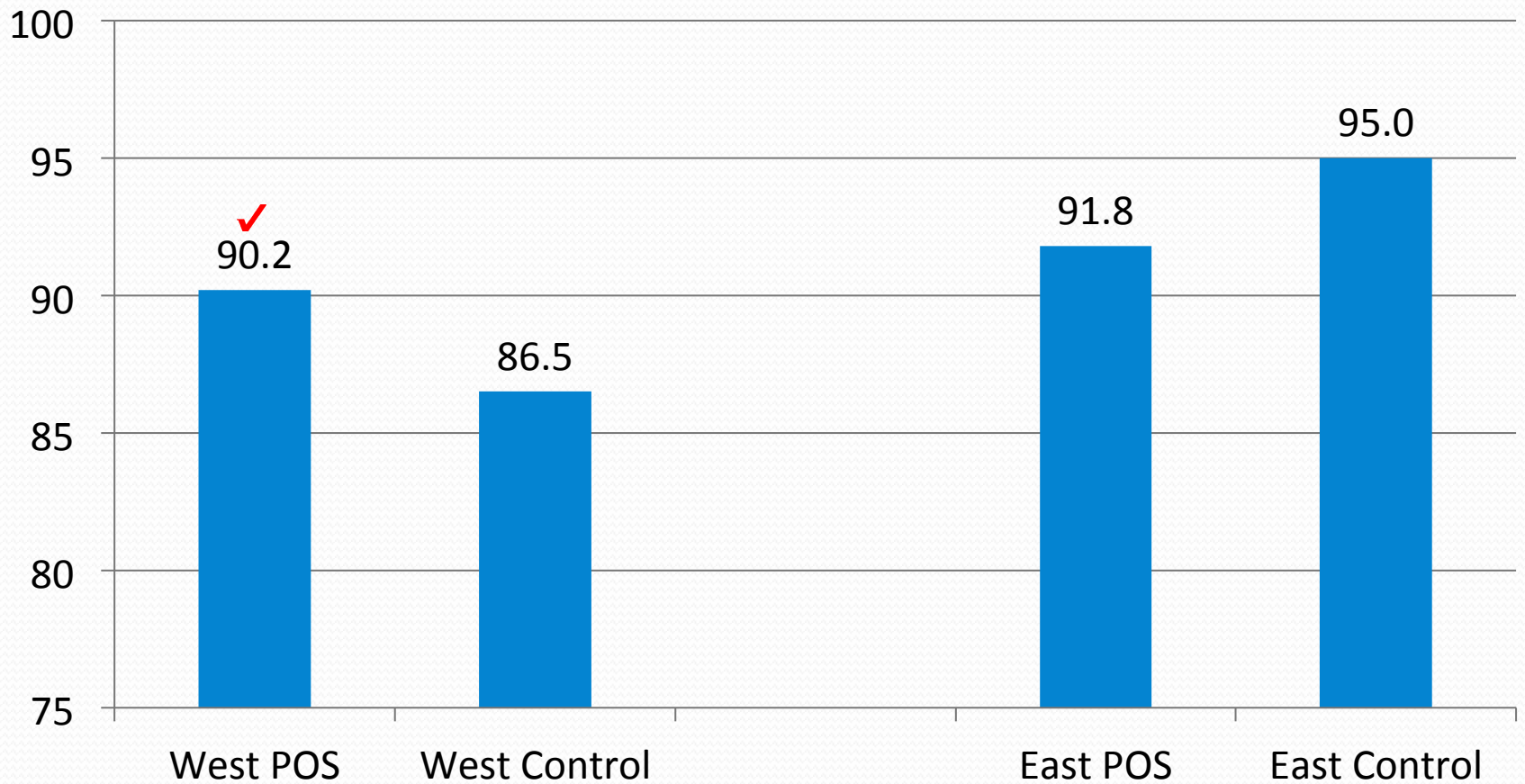
East District Credits Earned



East District Cumulative GPAs



Graduation Rates



Effect Sizes (Hedges's g)

Measure	West ES	East ES
10 th grade reading exam	0.09	-0.02
10 th grade math exam	0.11	0.11
10 th grade science exam	0.10	0.04
AP credits earned	-0.16	0.42
Math credits earned	-0.14	-0.14
Science credits earned	0.03	-0.14
Career credits earned	0.49	0.96
Overall GPA	-0.03	-0.05
Academic GPA	-0.04	-0.05
Career GPA	0.07	-0.24
Postsecondary GPA	0.16	-0.02
Graduation rate (<i>OR</i>)	1.43	-0.59

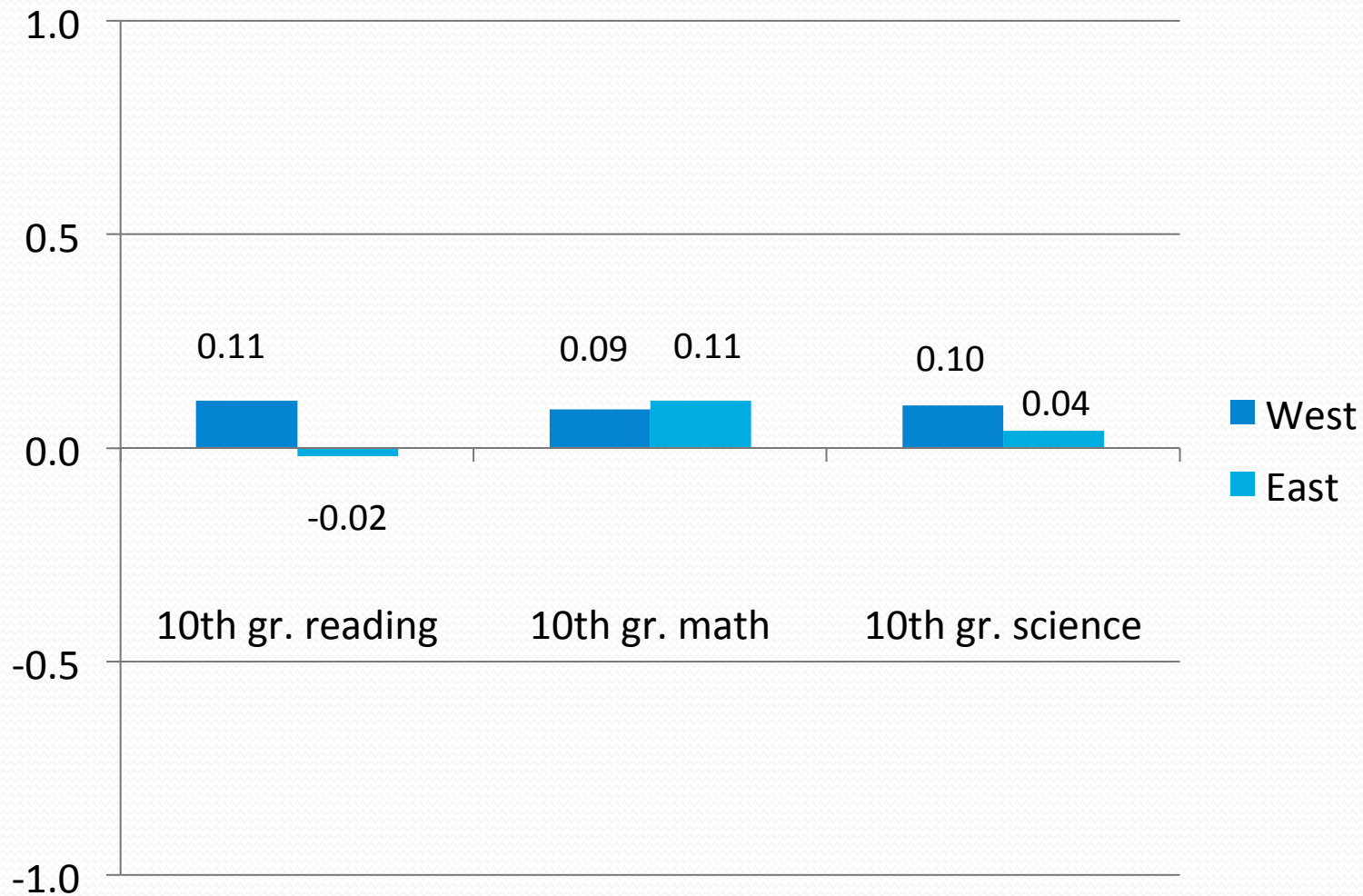
Notes on Effect Sizes (ES)

- ES let you know whether the differences in outcomes are educationally meaningful. Positive ES favor the POS.
- For 10th grade tests, none of the ES meet the ± 0.25 threshold, which makes sense because some POS don't start until 10th grade.
- No GPA ES meets the threshold either but POS students have lower CTE GPAs. This may be because they are taking a progressively more challenging CTE curriculum while the comparison students can take all intro courses in several areas.

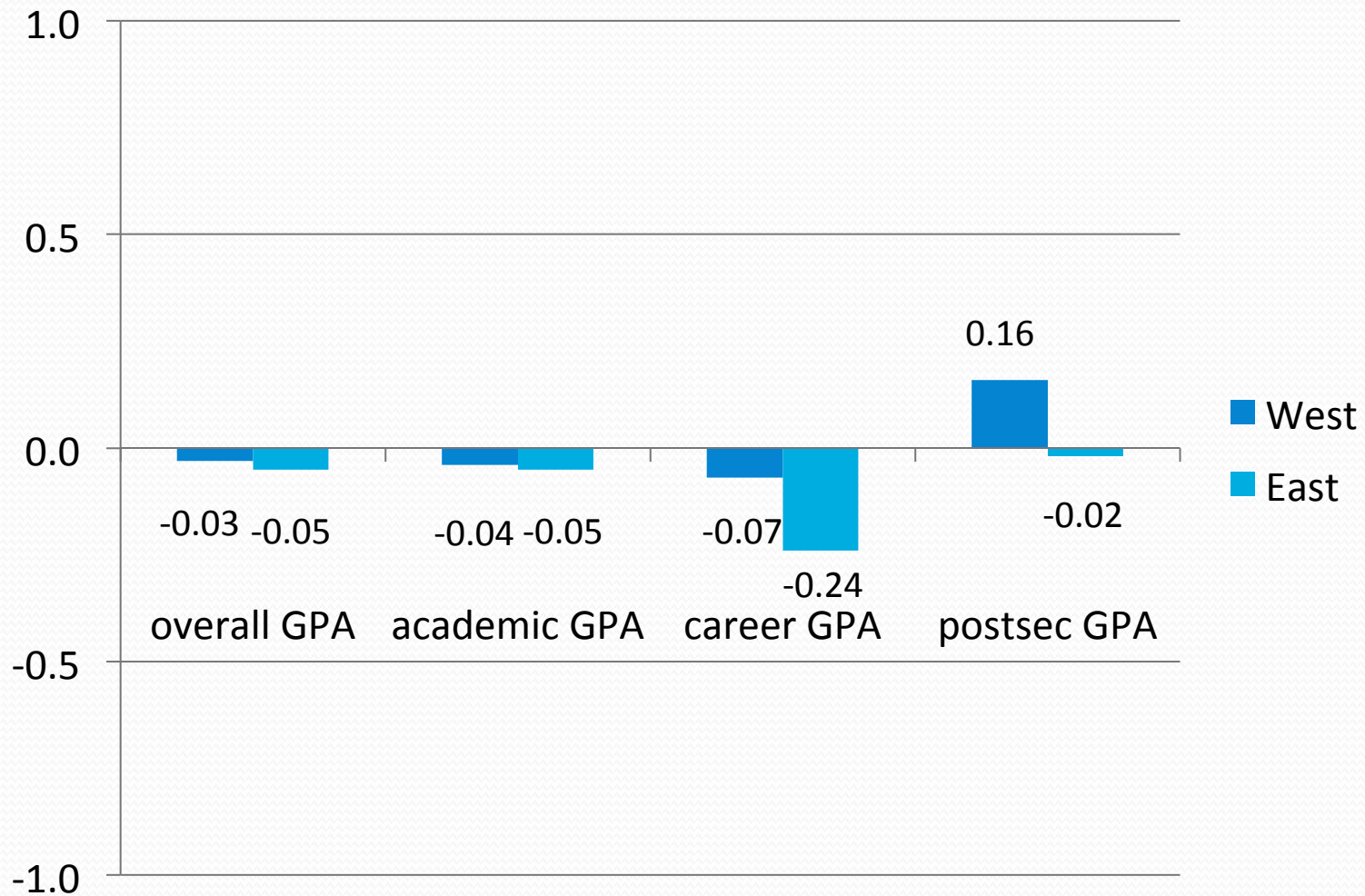
Notes on ES – Credits Earned

- For credits earned we found educationally meaningful differences as measured by effect sizes.
- In both districts, the ‘career credits earned’ have effect sizes well above +0.25. It’s not surprising to learn that POS students earned more career credits than their nonPOS counterparts.
- More surprising was the 0.42 ES on East District AP credits earned. This school has a culture of high achievement, where teachers and counselors encourage students to take high-level coursework and support is provided to help ensure success.
- This finding suggests that POS students have time and room in their schedules to continue taking college-readiness courses like AP courses while they are building solid career knowledge as well.

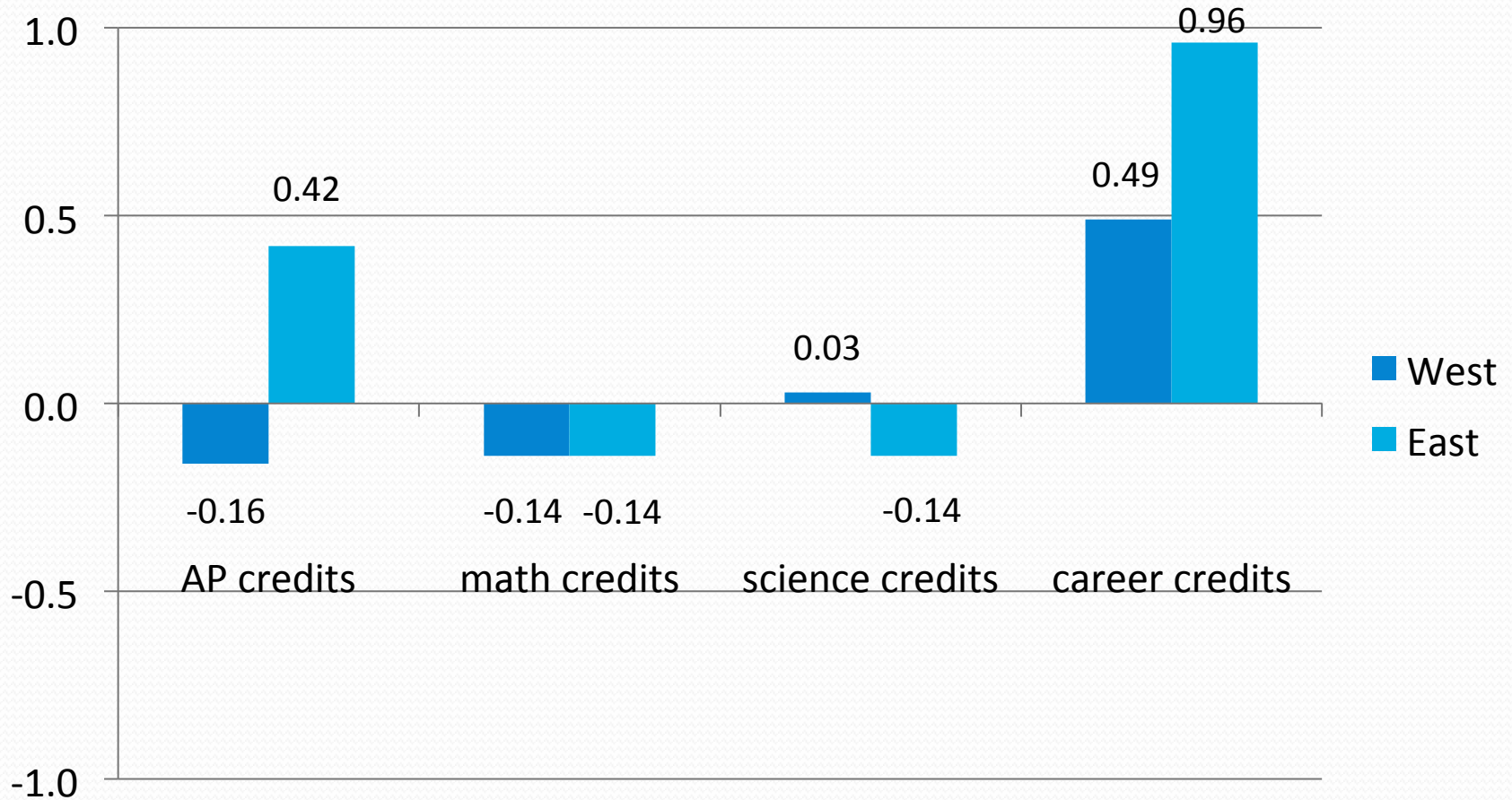
Estimated Impacts – 10th gr. tests



Estimated Impacts - GPA



Estimated Impacts – credits



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Report to be on the web by summer 2013:

<http://www.nrccte.org>

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