WWC Intervention Report

A summary of findings from a systematic review of the evidence

ACT Aspire™

This intervention report presents findings from a systematic review of *ACT Aspire*™ conducted using the WWC Procedures and Standards Handbook (version 3.0) and the Transition to College review protocol (version 3.2). No studies of *ACT Aspire*™ that fall within the scope of the Transition to College review protocol meet What Works Clearinghouse (WWC) group design standards. Because no studies meet WWC group design standards at this time, the WWC is unable to draw any conclusions based on research about the effectiveness or ineffectiveness of *ACT Aspire*™ on high school and college students. Research that meets WWC design standards is needed to determine the effectiveness or ineffectiveness of this intervention.

Intervention Description[1]

The *ACT Aspire*™ system provides a longitudinal, systematic approach for assessing and monitoring students' preparation for high school studies and readiness for college and career. *ACT Aspire*™ includes assessments for students from grade 3 through early high school in five subject areas: English, mathematics, reading, science, and writing. The system uses a standard scoring system that measures progress through each grade level and culminates with the ACT® college admissions test. The *ACT Aspire*™ system includes a variety of reporting features that permit schools to track individual student progress and examine trends for groups of learners.

An earlier version of the program, the *Educational Planning and Assessment System (EPAS®)*, included assessments for students in grades 8 and 9 to measure preparation for high school studies (*EXPLORE®*), grade 10 to measure preparation for college and the workplace (*PLAN®*), and grades 11 and 12 to measure readiness for life after high school (the ACT®). ACT began phasing out the use of *EPAS®* in 2014 and replaced it with the new *ACT Aspire*™ system.

Research[2]

The WWC identified 18 studies of *ACT Aspire*™ for high school and college students that were published or released between 1994 and 2016.

- Two studies are within the scope of the Transition to College review protocol but do not meet WWC group design standards because baseline equivalence of the analytic intervention and comparison groups is necessary and not demonstrated. One study (ACT, 2013) is a quasi-experimental design that compared postsecondary enrollment, performance, and completion rates of students who participated in ACT's early monitoring activities (i.e., taking the *EXPLORE®* and/or the *PLAN®*) and students who did not. The primary sample included 33,510 ACT-tested high school graduates in Oklahoma who immediately enrolled in an in-state college in the fall after high school graduation in 2001 or 2002. Because eligible outcomes did not have a natural pretest (e.g., college completion), the study authors needed to demonstrate baseline equivalence on academic achievement and student socioeconomic status, as required by the Transition to College protocol (version 3.2), but did not. The second study (Williams & Noble, 2005) is a quasi-experimental design that compared ACT® performance in high schools that implemented the *PLAN®* between 1994 and 2000 (and consistently tested all sophomores once implementation began) and schools that never used the *PLAN®* between 1994 and 2003. Outcomes were measured using 3-year school-level average ACT® scores from 2001, 2002, and 2003. Baseline equivalence data were presented from prior cohorts of tenth graders who took the ACT®. WWC standards require that baseline

equivalence for this cluster quasi-experimental design demonstrate baseline equivalence on an earlier, adjacent cohort used in the impact analysis. The study provided baseline data for intervention schools that included the adjacent cohort and several other baseline cohorts. The study provided baseline data for comparison schools that did not include an adjacent cohort; therefore, the study failed to establish baseline equivalence.

- Eleven studies are out of the scope of the Transition to College review protocol because they have an ineligible study design.
- Five studies are out of the scope of the Transition to College review protocol for reasons other than study design.

References

Studies that do not meet WWC group design standards

ACT. (2013). *Early monitoring and long-term college success in Oklahoma* (Issue brief). Iowa City, IA: Author. Retrieved from https://eric.ed.gov/?&id=ED546857 The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups is necessary and not demonstrated.

Williams, N. J., & Noble, J. P. (2005). *School-level benefits of using PLAN® over time* (Research Report Series 2005-01). Iowa City, IA: ACT. Retrieved from https://eric.ed.gov/?&id=ED484786 The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups is necessary and not demonstrated.

Studies that are ineligible for review using the Transition to College Evidence Review Protocol

ACT. (2007). *Setting students' sights on college: Chicago public schools* (Case study). Iowa City, IA: Author. Retrieved from https://eric.ed.gov/?&id=ED510456 The study is ineligible for review because it does not use an eligible design.

ACT. (2008). *EPAS® state of the nation report 2007: Mathematics.* Iowa City, IA: Author. Retrieved from https://eric.ed.gov/?&id=ED504646 The study is ineligible for review because it is out of scope of the protocol.

ACT. (2009). *How much growth toward college readiness is reasonable to expect in high school? Issues in college readiness*. Iowa City, IA: Author. Retrieved from https://eric.ed.gov/?&id=ED504656 The study is ineligible for review because it does not use an eligible design.

ACT. (2009). *Readiness and success: Statewide implementation of EXPLORE and PLAN*. *Issues in college readiness*. Iowa City, IA: Author. Retrieved from https://eric.ed.gov/?&id=ED504654 The study is ineligible for review because it does not use an eligible design.

ACT. (2009). *Using PLAN to identify student readiness for rigorous courses in high school*. *Issues in college readiness*. Iowa City, IA: Author. Retrieved from https://eric.ed.gov/?&id=ED506253 The study is ineligible for review because it does not use an eligible design.

ACT. (2015). *Building momentum: The condition of progress toward college readiness. A profile of 2013 ACT Explore®- and ACT Plan®-tested students*. Iowa City, IA: Author. Retrieved from https://eric.ed.gov/?&id=ED558025 The study is ineligible for review because it does not use an eligible design.

Bleier, J. K. (2007). *The impact of career counseling plus DISCOVER (Internet version) on the academic achievement of high school sophomores at risk for dropping out of school* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3253166) The study is ineligible for review because it is out of scope of the protocol.

Bradford, W. R. (2005). *An investigation of African American academic achievement at a suburban high school* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3161338) The study is ineligible for review because it does not use an eligible design.

Heppen, J., Allensworth, E., Walters, K., Pareja, A. S., Kurki, A., Nomi, T., & Sorensen, N. (2012). *Efficacy of online Algebra I credit recovery for at-risk ninth grade students: Evidence from year 1.* Evanston, IL: Society for Research on Educational Effectiveness. Retrieved from https://eric.ed.gov/?&id=ED530562 The study is ineligible for review because it is out of scope of the protocol.

Hichens, L. (2010). *College readiness of 11th grade students: Identifying characteristics related to success on the ACT* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3381288) The study is ineligible for review because it does not use an eligible design.

McIntosh, S. (2011). *State high school tests: Changes in state policies and the impact of the college and career readiness movement*. Washington, DC: Center on Education Policy. Retrieved from https://eric.ed.gov/?&id=ED530163 The study is ineligible for review because it does not use an eligible design.

Mumpower, C. L. (2014). *Factors that influence student achievement of ACT college readiness benchmarks in a large urban school district in North Carolina.* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3645415) The study is ineligible for review because it does not use an eligible design.

Noble, J. (2003). *The effects of using EPAS programs on PLAN and ACT assessment performance* (ACT research report series 2003-2). Iowa City, IA: ACT. Retrieved from https://eric.ed.gov/?&id=ED476188 The study is ineligible for review because it does not use an eligible design.

Noble, J. P., & Schnelker, D. (2007). *Using hierarchical modeling to examine course work and ACT score relationships across high schools* (ACT research report series, 2007-2). Iowa City, IA: ACT. Retrieved from https://eric.ed.gov/?&id=ED510476 The study is ineligible for review because it does not use an eligible design.

Westry, T. (2015, October 20). Contribution from AT&T ASPIRE supports continuation of innovative program to improve writing skills and college readiness for students. *University Wire*. The study is ineligible for review because it is out of scope of the protocol.

Woodruff, D. J. (2003). *Relationships between EPAS scores and college preparatory course work in high school* (ACT research report series). Iowa City, IA: ACT. Retrieved from https://eric.ed.gov/?&id=ED480900 The study is ineligible for review because it is out of scope of the protocol.

Endnotes

[1] The descriptive information for this intervention comes from a publicly-available source: the developer's website (http://www.act.org, downloaded January 2017). The What Works Clearinghouse (WWC) requests that developers review the intervention description sections for accuracy from their perspective. The WWC provided the developer with the intervention description in February 2017; however the WWC did not receive a response. Further verification of the accuracy of the descriptive information for this intervention is beyond the scope of this review.

[2] The literature search reflects documents publicly available by March 2016. Reviews of studies in this report used the standards from the WWC Procedures and Standards Handbook (version 3.0) and the Transition to College review protocol (version 3.2). The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

Recommended Citation

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Glossary of Terms

Attrition Attrition occurs when an outcome variable is not available for all subjects initially assigned to the intervention and comparison groups. If a randomized controlled trial (RCT) or regression discontinuity design (RDD) study has high levels of attrition, the validity of the study results can be called into question. An RCT with high attrition cannot receive the highest rating of *Meets WWC Group Design Standards without Reservations*, but can receive a rating of *Meets WWC Group Design Standards with Reservations* if it establishes baseline equivalence of the analytic sample. Similarly, the highest rating an RDD with high attrition can receive is *Meets WWC RDD Standards with Reservations*.

For single-case design research, attrition occurs when an individual fails to complete all required phases or data points in an experiment, or when the case is a group and individuals leave the group. If a single-case design does not meet minimum requirements for phases and data points within phases, the study cannot receive the highest rating of Meets WWC Pilot Single-Case Design Standards without Reservations.

Baseline A point in time before the intervention was implemented in group design research and in regression discontinuity design studies. When a study is required to satisfy the baseline equivalence requirement, it must be done with characteristics of the analytic sample at baseline. In a single-case design experiment, the baseline condition is a period during which participants are not receiving the intervention.

Clustering adjustment An adjustment to the statistical significance of a finding when the units of assignment and analysis differ. When random assignment is carried out at the cluster level, outcomes for individual units within the same clusters may be correlated. When the analysis is conducted at the individual level rather than the cluster level, there is a mismatch between the unit of assignment and the unit of analysis, and this correlation must be accounted for when assessing the statistical significance of an impact estimate. If the correlation is not accounted for in a mismatched analysis, the study may be too likely to report statistically significant findings. To fairly assess an intervention's effects, in cases where study authors have not corrected for the clustering, the WWC applies an adjustment for clustering when reporting statistical significance.

Confounding factor A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor.

Design The method by which intervention and comparison groups are assigned (group design and regression discontinuity design) or the method by which an outcome measure is assessed repeatedly within and across different phases that are defined by the presence or absence of an intervention (single-case design). Designs eligible for WWC review are randomized controlled trials, quasi-experimental designs, regression discontinuity designs, and single-case designs.

Effect size The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes.

Eligibility A study is eligible for review and inclusion in this report if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design.

Equivalence A demonstration that the analytic sample groups are similar on observed characteristics defined in the review area protocol.

Glossary of Terms (continued)

Extent of evidence An indication of how much evidence from group design studies supports the findings in an intervention report. The extent of evidence categorization for intervention reports focuses on the number and sizes of studies of the intervention in order to give an indication of how broadly findings may be applied to different settings. There are two extent of evidence categories: small and medium to large.

- **small:** includes only one study, or one school, or findings based on a total sample size of less than 350 students and 14 classrooms (assuming 25 students in a class)
- **medium to large:** includes more than one study, more than one school, and findings based on a total sample of at least 350 students or 14 classrooms

Gain scores The result of subtracting the pretest from the posttest for each individual in the sample. Some studies analyze gain scores instead of the unadjusted outcome measure as a method of accounting for the baseline measure when estimating the effect of an intervention. The WWC reviews and reports findings from analyses of gain scores, but gain scores do not satisfy the WWC's requirement for a statistical adjustment under the baseline equivalence requirement. This means that a study that must satisfy the baseline equivalence requirement and has baseline differences between 0.05 and 0.25 standard deviations *Does Not Meet WWC Group Design Standards* if the study's only adjustment for the baseline measure was in the construction of the gain score.

Group design A study design in which outcomes for a group receiving an intervention are compared to those for a group not receiving the intervention. Comparison group designs eligible for WWC review are randomized controlled trials and quasi-experimental designs.

Improvement index Along a percentile distribution of individuals, the improvement index represents the gain or loss of the average individual due to the intervention. As the average individual starts at the 50th percentile, the measure ranges from –50 to +50.

Intervention An educational program, product, practice, or policy aimed at improving student outcomes.

Intervention report A summary of the findings of the highest-quality research on a given program, product, practice, or policy in education. The WWC searches for all research studies on an intervention, reviews each against design standards, and summarizes the findings of those that meet WWC design standards.

Multiple comparison adjustment An adjustment to the statistical significance of results to account for multiple comparisons in a group design study. The WWC uses the Benjamini-Hochberg (BH) correction to adjust the statistical significance of results within an outcome domain when study authors perform multiple hypothesis tests without adjusting the p-value. The BH correction is used in three types of situations: studies that tested multiple outcome measures in the same outcome domain with a single comparison group; studies that tested a given outcome measure with multiple comparison groups; and studies that tested multiple outcome measures in the same outcome domain with multiple comparison groups. Because repeated tests of highly correlated constructs will lead to a greater likelihood of mistakenly concluding that the impact was different from zero, in all three situations, the WWC uses the BH correction to reduce the possibility of making this error. The WWC makes separate adjustments for primary and secondary findings.

Outcome domain A group of closely-related outcomes. A domain is the organizing construct for a set of related outcomes through which studies claim effectiveness.

Quasi-experimental design (QED) A quasi-experimental design (QED) is a research design in which study participants are assigned to intervention and comparison groups through a process that is not random.

Glossary of Terms (continued)

Randomized controlled trial (RCT) A randomized controlled trial (RCT) is an experiment in which eligible study participants are randomly assigned to intervention and comparison groups.

Rating of effectiveness For group design research, the WWC rates the effectiveness of an intervention in each domain based on the quality of the research design and the magnitude, statistical significance, and consistency in findings. For single-case design research, the WWC rates the effectiveness of an intervention in each domain based on the quality of the research design and the consistency of demonstrated effects.

Regression discontinuity design (RDD) A design in which groups are created using a continuous scoring rule. For example, students may be assigned to a summer school program if they score below a preset point on a standardized test, or schools may be awarded a grant based on their score on an application. A regression line or curve is estimated for the intervention group and similarly for the comparison group, and an effect occurs if there is a discontinuity in the two regression lines at the cutoff.

Single-case design A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention.

Standard deviation The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample tend to be spread out over a large range of values.

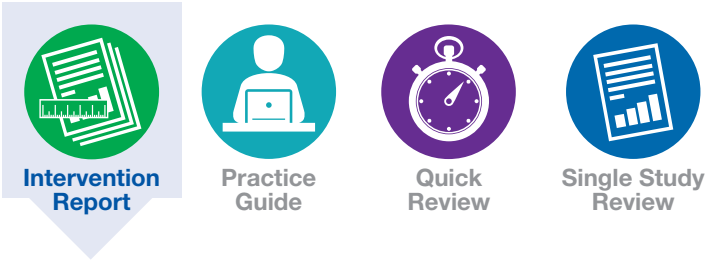
Statistical significance Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ($p < .05$).

Study rating The result of the WWC assessment of a study. The rating is based on the strength of the evidence of the effectiveness of the educational intervention. Studies are given a rating of *Meets WWC Design Standards without Reservations, Meets WWC Design Standards with Reservations*, or *Does Not Meet WWC Design Standards*, based on the assessment of the study against the appropriate design standards. The WWC has design standards for group design, single-case design, and regression discontinuity design studies.

Substantively important A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.

Systematic review A review of existing literature on a topic that is identified and reviewed using explicit methods. A WWC systematic review has five steps: 1) developing a review protocol; 2) searching the literature; 3) reviewing studies, including screening studies for eligibility, reviewing the methodological quality of each study, and reporting on high quality studies and their findings; 4) combining findings within and across studies; and, 5) summarizing the review.

Please see the WWC Procedures and Standards Handbook (version 3.0) for additional details.



An **intervention report** summarizes the findings of high-quality research on a given program, practice, or policy in education. The WWC searches for all research studies on an intervention, reviews each against evidence standards, and summarizes the findings of those that meet standards.

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