

# National Assessment Governing Board

## Committee on Standards, Design and Methodology

May 15, 2015  
10:15 am – 12:30 pm

**Zaharakos**  
**329 Washington Street, 2<sup>nd</sup> Floor**  
**Green River Room**

### AGENDA

10:15 – 10:20 am	Introductions and Review of Agenda <i>Lou Fabrizio, COSDAM Chair</i>	
10:20 – 11:05 am	Draft Resolution on Maintaining Trend with Transition to Digital Based Assessments <i>Lou Fabrizio, COSDAM Chair</i> <i>Andrew Ho, COSDAM Member</i>	Attachment A
11:05 – 11:20 am	Update on NAEP Academic Preparedness Research <i>Sharyn Rosenberg, NAGB Staff</i>	Attachment B
11:20 – 11:25 am	Other Issues and Questions <i>COSDAM Members</i>	
11:25 – 11:30 am	BREAK	
11:30 am – 12:30 pm	<b>CLOSED SESSION:</b> Project Update for Technology and Engineering Literacy Achievement Levels Setting <i>Steve Fitzpatrick, Pearson</i>	
	Information Item <ul style="list-style-type: none"><li>• Update on Evaluation of NAEP Achievement Levels</li></ul>	Attachment C

### **Draft Resolution on Maintaining Trend with the Transition to Digital Based Assessments**

Over the past year, the Board has had several discussions about the importance of maintaining trend with the shift towards digital based assessments (DBA). The following is an excerpt from the COSDAM minutes from November 21, 2014:

“COSDAM members emphasized the critical importance of the 2017 NAEP results and maintenance of trend, given all of the changes occurring in state assessments. Terry Holliday stated that if the cost of moving to TBA is that we lose the trend, then NAEP’s gold standard will be undermined. There was consensus that everything possible must be done upfront to maintain the trend, and that the question should be reframed as *how* rather than *whether* trend can be maintained. There was considerable discussion about the extent to which the trend decision is a policy issue. It is unlikely that the data from the bridge studies will be definitive, and the narrative around the trend decision (including any caveats) will be as important as the trend decision itself.”

The Board staff proposed that a Resolution be developed to formally document and articulate the Board’s position on the importance of maintaining trend during the transition to DBA. COSDAM members provided input on the development of such a Resolution during the March 2015 COSDAM meeting. In addition, Governing Board staff sought input from NCES staff.

The proposed Resolution will be discussed during the COSDAM meeting and during a full Board session on May 15<sup>th</sup>, and it will then be revised if necessary. Following the May Board meeting, feedback will be gathered from external groups. The Board would take action on a final Resolution during the August 2015 Board meeting.

**Draft Resolution**  
**Maintaining NAEP Trend with the Transition to Digital-Based Assessments (DBA)**  
**5/6/15**

Whereas P.L. 107-279 Title III Section 302 (5) includes as the duties of this Board to (G) develop guidelines for reporting and disseminating results, and (I) take appropriate actions needed to improve the form, content, use, and reporting of results, and,

Whereas P.L. 107-279 Title III Section 303 (2) states that the Commissioner of Education Statistics shall conduct a national assessment and collect and report assessment data, including achievement data trends, in a valid and reliable manner on student academic achievement, and,

Whereas P.L. 107-279 Title III Section 303 (2) states that the purpose of state assessments is the “reporting of trends,” with repeated emphasis on “including achievement data trends,” and,

Whereas Goal 1 of the Governing Board’s *General Policy: Conducting and Reporting The National Assessment of Educational Progress*, adopted unanimously by the Board in 2013, is, “to serve as a **consistent** external, independent measure of student achievement by which results across education systems can be compared at points in time **and over time**” (emphasis added), and,

Whereas NAEP stands for the National Assessment of Educational **Progress** (emphasis added), and,

Whereas state tests and state testing policies continue to differ among states, and such tests and policies change over time, and,

Whereas biennial state-level NAEP trends are the only representative measure of educational progress that is comparable across states and stable over time, and,

Whereas NCES is designing and implementing the DBA transition with the goal of maintaining trends, including 1) a pilot DBA administration and a full paper-and-pencil administration in 2015 and 2) a full DBA administration and a state-level paper-and-pencil administration in 2017; and,

Whereas NCES will examine data and conduct analyses from both 2015 and 2017 to determine whether trend interpretations based on the DBA results are scientifically defensible;

Whereas NCES will explore additional analysis and reporting options, with involvement of the Governing Board, on the potential interpretations of trends for use in reporting the 2017 Reading and Mathematics results with the transition from paper and pencil to DBA administration; now, therefore, be it

*Resolved*, That, unless scientifically indefensible, unbroken state-level and national trends be reported, by average scores, percentiles, and percentages at and above the *Basic*, *Proficient*, and *Advanced* achievement levels, to describe educational progress in Reading and Mathematics from 2015 to 2017.

## NAEP Academic Preparedness Research

### Phase 1 Research

The first phase of the Governing Board's research on academic preparedness is now complete; results from more than 30 studies are available at: <http://www.nagb.org/what-we-do/preparedness-research.html>. During the August 2013 meeting, the Board voted on a motion to use the phase 1 research on academic preparedness for college in the reporting of the 2013 grade 12 national results for reading and mathematics, released on May 14, 2014. The motion, validity argument, and phase 1 final report are now available on the aforementioned website.

### Phase 2 Research

The second phase of the Governing Board's research on academic preparedness currently consists of the following studies that are planned or underway:

Study name	Sample	May 2015 Update
Statistical linking of NAEP and ACT	National; FL, MI, TN	Page 5
Statistical linking of NAEP and SAT	MA	Page 6
Longitudinal statistical relationships: Grade 12 NAEP	FL, MA, MI, TN	Page 7
Statistical linking of NAEP and Explore	KY, NC, TN	Page 8
Longitudinal statistical relationships: Grade 8 NAEP	NC, TN	Page 9
Content Alignment Studies of the 2013 National Assessment of Educational Progress for Grade 8 Reading and Mathematics with ACT Explore Assessments of These Subjects		Pages 10 - 13
Evaluating Reading and Mathematics Frameworks and Item Pools as Measures of Academic Preparedness for College and Job Training		Pages 14 - 16
College Course Content Analysis		Page 17

Brief overviews and project updates are provided for each study.

## National and State Statistical Linking Studies with the ACT

The Governing Board is planning to partner with ACT, Inc. to conduct a statistical linking study at the national level between NAEP and the ACT in Reading and Mathematics. Through a procedure that protects student confidentiality, the ACT records of 12<sup>th</sup> grade NAEP test takers in 2013 will be matched, and through this match, the linking will be performed. A similar study at the national level was performed with the SAT in 2009. There will not be a national statistical linking study performed for NAEP and the SAT in 2013.

In addition, the state-level studies, begun in 2009 with Florida, will be expanded with 2013 NAEP. Again using a procedure that protects student confidentiality, ACT scores of NAEP 12<sup>th</sup> grade test takers in the state samples in partner states will be linked to NAEP scores. We are working with four states to be partners in these studies at grade 12: Florida, Illinois, Michigan, and Tennessee. In three of these states (IL, MI, TN), the ACT is administered to all students state-wide, regardless of students' intentions for postsecondary activities.

### Research Questions for National and State Statistical Linking Studies with the ACT:

1. What are the correlations between the grade 12 NAEP and ACT student score distributions in Reading and Math?
2. What scores on the grade 12 NAEP Reading and Math scales correspond to the ACT college readiness benchmarks? (concordance and/or projection)
3. What are the average grade 12 NAEP Reading and Math scores and interquartile ranges (IQR) for students below, at, and at or above the ACT college readiness benchmarks?
4. Do the results differ by race/ethnicity or gender?

**May 2015 Update:** Data have been received from MI and TN, and data analyses are underway; results are expected to be shared with COSDAM during the November 2015 meeting. A final version of the ACT data sharing agreement is under review by ACT legal representatives. We were not able to come to an agreement with IL; unfortunately they have some requirements that are not feasible for us to implement. The data sharing agreement with FL is still being worked out.

## State Statistical Linking Study with the SAT

In 2009, the Governing Board partnered with the College Board to conduct a statistical linking study at the national level between NAEP and the SAT in Reading and Mathematics. Through a procedure that protects student confidentiality, the SAT records of 12<sup>th</sup> grade NAEP test takers in 2009 were matched, and through this match, the linking was performed. There will not be a national statistical linking study performed for NAEP and the SAT in 2013.

We have partnered with Massachusetts to conduct a state-level linking study for 2013 NAEP and the SAT. Again using a procedure that protects student confidentiality, SAT scores of NAEP 12<sup>th</sup> grade test takers in Massachusetts will be linked to NAEP scores.

### Research Questions for National and State Statistical Linking Studies with the SAT:

1. What are the correlations between the grade 12 NAEP and SAT student score distributions in Reading and Math?
2. What scores on the grade 12 NAEP Reading and Math scales correspond to the SAT college readiness benchmarks? (concordance and/or projection)
3. What are the average grade 12 NAEP Reading and Math scores and interquartile ranges (IQR) for students below, at, and at or above the SAT college readiness benchmarks?
4. Do the results differ by race/ethnicity or gender?

**May 2015 Update:** The data have been received from MA. Data analyses are underway; results are expected to be shared with COSDAM during the November 2015 meeting.

## Longitudinal Statistical Relationships: Grade 12 NAEP

In addition to the linking of ACT scores to NAEP 12<sup>th</sup> grade test scores in partner states, the postsecondary activities of NAEP 12<sup>th</sup> grade test takers will be followed for up to six years using the state longitudinal databases in Florida, Illinois, Massachusetts, Michigan, and Tennessee. These studies will examine the relationship between 12<sup>th</sup> grade NAEP scores and scores on placement tests, placement into remedial versus credit-bearing courses, GPA, and persistence.

### Research Questions for Longitudinal Statistical Relationships, Grade 12 NAEP:

1. What is the relationship between grade 12 NAEP Reading and Math scores and grade 8 state test scores?
2. What are the average grade 12 NAEP Reading and Math scores and interquartile ranges (IQR) for students with placement in remedial and non-remedial courses?
3. What are the average grade 12 NAEP Reading and Math scores (and the IQR) for students with a first-year GPA of B- or above?
4. What are the average grade 12 NAEP Reading and Math scores (and the IQR) for students who remain in college after each year?
5. What are the average grade 12 NAEP Reading and Math scores (and the IQR) for students who graduate from college within 6 years?

**May 2015 Update:** The data sharing agreements have been finalized for MA, MI, and TN; longitudinal data files will be prepared and transmitted when available. We were not able to come to an agreement with IL; unfortunately they have some requirements that are not feasible for us to implement. The data sharing agreement with FL is still being worked out.

**State Statistical Linking Studies with ACT Explore**

In 2013, linking studies between 8<sup>th</sup> grade NAEP in Reading and Mathematics and Explore, a test developed by ACT, Inc. that is linked to performance on the ACT, are planned with partners in three states: Kentucky, North Carolina, and Tennessee. In all three of these states, Explore was administered to all students state-wide who were in grade 8 during the 2012-13 school year.

**Research Questions for State Statistical Linking Studies with ACT Explore:**

1. What are the correlations between the grade 8 NAEP and Explore scores in Reading and Math?
2. What scores on the grade 8 NAEP Reading and Math scales correspond to the Explore college readiness benchmarks (concordance and/or projection)?
3. What are the average grade 8 NAEP Reading and Math scores and the interquartile ranges (IQR) for students below, at, and at or above the Explore college readiness benchmarks?

***May 2015 Update:*** The data have been received from all three states, and data analyses are currently underway. Results are expected to be shared with COSDAM during the August 2015 meeting.



## Longitudinal Statistical Relationships: Grade 8 NAEP

In 2013, the Governing Board will also expand the state-level studies by partnering with two states at grade 8. Again using a procedure that protects student confidentiality, secondary and postsecondary data for NAEP 8<sup>th</sup> grade test takers in the state samples in partner states will be linked to NAEP scores. These studies will examine the relationship between 8<sup>th</sup> grade NAEP scores and scores on state tests, future ACT scores, placement into remedial versus credit-bearing courses, and first-year college GPA.

Two states will be partners in these studies at grade 8: North Carolina and Tennessee.

### Research Questions for Longitudinal Statistical Relationships, Grade 8 NAEP:

1. What is the relationship between NAEP Reading and Math scores at grade 8 and state test scores at grade 4?
2. What are the average NAEP Reading and Math scores and the interquartile ranges (IQR) at grade 8 for students below the ACT benchmarks at grade 11/12? At or above the ACT benchmarks?
3. What are the average NAEP Reading and Math scores and the interquartile ranges (IQR) at grade 8 for students who are placed in remedial and non-remedial courses in college?
4. What are the average NAEP Reading and Math scores (and the IQR) at grade 8 for students who obtain a first-year college GPA of B- or above?
5. What is the relationship between grade 8 NAEP Reading and Math scores and grade 12 NAEP Reading and Math scores? (contingent on feasibility of sampling the same students in TN and NC)

**May 2015 Update:** The data sharing agreements are complete; analyses are currently underway (to address the first research question). Additional data will be transmitted when they become available over the next several years.

**Content Alignment Studies of the 2013 National Assessment of Educational Progress for Grade 8 Reading and Mathematics with ACT Explore Assessments of These Subjects****Project Status Update  
April 15, 2015  
Contract ED-NAG-14-C-0002****Project Overview**

This is the third quarterly report for the NAEP-ACT EXPLORE Content Alignment Studies project that is being submitted to the Governing Board.

In September 2014, NORC at the University of Chicago, along with its subcontractor, the Wisconsin Center for Education Products and Services (WCEPS), were awarded a contract to conduct content alignment studies with the ACT EXPLORE assessments in reading and mathematics and the 2013 National Assessment of Educational Progress (NAEP) Reading and Mathematics assessment at grade 8. The purpose of this research is to evaluate the extent to which 8th grade NAEP is aligned in content and complexity with the EXPLORE assessment. For each subject area, the studies will compare the two assessments (NAEP and ACT EXPLORE) to the NAEP frameworks, and also to the ACT College Readiness Standards. Using the content alignment methodology designed by Dr. Norman Webb for the Preparedness Research Program commissioned by the Governing Board, these studies will measure and describe the degree of alignment between the grade 8 NAEP math and reading assessments and ACT EXPLORE assessments in these same subjects. The results of these NAEP-EXPLORE content comparisons will also inform interpretations from statistical linking studies of 2013 results of NAEP and EXPLORE in grade 8 reading and mathematics.

To support the provision of ACT proprietary EXPLORE data, the Governing Board also issued a sole source contract with ACT, Inc. NORC is working with ACT to receive data and materials that will be used in the content alignment studies, and is consulting with ACT assessment staff to support the work and analyses.

**Project Update**

One key feature of the specified design for analyzing the alignment between the NAEP mathematics and reading assessments and the ACT EXPLORE assessments was to conduct a framework analysis comparing the two frameworks for the assessments. The purpose of the framework analysis was to determine the extent to which the documents that are intended to specify the domain of knowledge to be assessed are the same or different. A second feature of the study design was to conduct a Content Alignment Institute (CAI) that is structured around panels of content experts, including teachers, who map the items from each assessment to each of the content frameworks. The alignment between the two assessments is determined by comparing the mapping of both assessments to each of the two frameworks. The alignment

between these two assessments will be gauged by the extent of overlapping content knowledge targeted by the two assessments and by the extent of content knowledge that is targeted and unique for each assessment.

### ***Implementation of the Content Alignment Institute (CAI)***

In this quarter, the Project leaders at NORC and WCEPS focused efforts on successful implementation of the February 9-13, 2015 Content Alignment Institute. Thirty-two panelists (16 math, 16 reading experts), four facilitators (two math, two reading), and representatives from NCES, ACT and NAGB comprised the participants at the Institute held the NORC Bethesda, MD, facility during that week. A national process of outreach and recruitment was conducted by NORC to ensure that panels would have members who are experienced, qualified teachers and assessment specialists in reading and mathematics, and that the panels would be representative of students and teachers based on gender, race/ethnicity, and region of the U.S. NORC and NAGB sent a joint letter of invitation to all state departments of education and to leaders of over 30 professional organizations of educators in the fields of math and reading.

In the CAI, the content analysis of reading and mathematics assessments was conducted by two panels of eight educators for each content area. A panel of eight constitutes a sufficient number to insure high reliability of the assigned depth-of-knowledge level to a standard or assessment item and the reliability of the assigned assessment item to a content standard. Two panels were included in the design to identify and analyze potential variations in coding results that may reflect legitimate differences. An assessment framework may have overlapping standards and objectives, which results in the representation of an item measuring content in more than one standard. Another feature incorporated into the design for collecting these data is the adjudication of coding results. In adjudication, panelists discuss their differences in their initial coding results to determine the degree of variation in coding among the group. Adjudication discussions are conducted after panelists have initially reviewed and individually mapped items on an assessment to the standards and objectives in the framework. Panelists discussed and explained the reasons they had for the code they assigned, and facilitators were trained to guide the discussion to help panelists identify agreement.

The Institute led by NORC and WCEPS staff covered five full days of work. The first day provided an overview of the study design, training on the analysis process, and experience on identifying the depth of knowledge for standards and objectives. Each panel reviewed and coded the NAEP assessment for their subject to the NAEP framework as well as to the ACT Content Readiness Standards (CRS) for the subject. The panels also reviewed and coded the ACT EXPLORE assessments to the CRS and to NAEP frameworks. By the end of the week, all data from the panels were adjudicated and finalized, and entered into the WATv2 online database housed at Wisconsin Center for Education Products and Services. The staff used several steps to guide the process effectively. First, daily debriefings were conducted by the technical coordinator (Norman Webb) and the project director (Rolf Blank) with the four panel facilitators

to identify any issues and scheduling problems. Second, two feedback surveys were given to all panelists to gauge their perceptions regarding their training and the analysis process and to identify possibly improvements. Challenges during the Institute and content alignment process included ensuring sufficient time for individual coding work and adjudication, and maintaining a consistent pace among the members of each panel. While the panelists were all highly competent in their field, they varied widely in experience with assessment content analysis. The technical coordinator and facilitators worked to improve the knowledge and skills of panelists for the analysis tasks during the week, however, one panelist did have to use extra time to complete the individual analysis and coding and missed part of the adjudication process. A review of the feedback survey data shows a high level of agreement that panelists were well prepared, that they received sufficient training, and that they found the experience highly satisfying professionally. The areas of difficulty panelists reported were gaining sufficient familiarity with all the standards and objectives (101 in NAEP mathematics) to be efficient in their work, and having enough time with training examples and participating in sufficient group discussions to feel comfortable with the results of their work.

### ***Process Outcomes***

The implementation of the NAEP-EXPLORE content alignment study followed very closely to the design as described in the design document. There were only a few deviations from the general design. There were time pressures to complete all of the work at the five-day institute. As a result, some panelists felt rushed and one panelist had to complete coding the assessments to the standards in a separate room and was not able to participate in some adjudication sessions. Both panels completed all of the within-group adjudications for all six of the analyses. Both between-group adjudications with the NAEP assessment were completed. The between-group adjudication after coding the two EXPLORE forms to the CRS was not performed because there was a reasonable agreement between the two panels and time pressures. The overall agreement within each panel in assigning DOK levels to assessment items and items to content areas or strands was reasonably high. The agreement in assigning items to objectives or standards was lower. This lack of agreement at the objective or standard level was not considered to be significant because the results were reported at the content area and strand levels.

### ***Preparation for Next Steps***

After completion of the February Institute, the NORC and WCEPS team conducted data review, cleaning and preparation for analysis. These efforts are critical to developing the final mathematics and reading reports.

### **Current Tasks**

The work currently underway is related to the final reports for mathematics and reading. The first drafts of the reports were submitted on April 15, 2015, and are currently being reviewed by NAGB staff. Upon receipt of comments, NORC-WCEPS will review and incorporate comments,

and submit a second draft of both reports mid-May 2015, for review by ACT staff as well. The finalized reports will be presented at the August 2015 Board meeting.

### **Milestones**

There are several major project milestones. The highlighted items are complete (milestone has been met). Milestones include preparatory work, data collection, and alignment analysis and reporting. The following table lists the major milestones and timelines for completing this work:

<i><b>Milestone</b></i>	<i><b>Date</b></i>
Kickoff Meeting	9/29/14 - <i>Complete</i>
Submit Planning Document	10/31/14 - <i>Complete</i>
Conduct Framework Analyses	10/16/14-11/4/14 - <i>Complete</i>
Recruit Panelists for Content Alignment Institute	11/1/14 – 12/19/14 - <i>Complete</i>
Convene Design Review and Strengthening Meeting	11/12/14 - <i>Complete</i>
Conduct Content Alignment Institute	2/9/15-2/13/15 - <i>Complete</i>
Conduct Data Analysis	2/9/15-2/27/15 - <i>Complete</i>
Prepare Draft Report 1	3/8/15-4/15/15 – <i>Delivered</i>
Prepare Draft Report 2	4/16/15-5/18/15
Prepare Final Reports	5/21/15-7/1/15
Present final reports to COSDAM	7/15/15-8/7/15

## EVALUATING READING AND MATHEMATICS FRAMEWORKS AND ITEM POOLS AS MEASURES OF ACADEMIC PREPAREDNESS FOR COLLEGE AND JOB TRAINING

### Project Status Update Contract ED-NAG-13C-0001

The National Assessment Governing Board contracted with the Human Resources Research Organization (HumRRO) in June 2013 to conduct three tasks related to research on 12<sup>th</sup> grade preparedness:

1. **Evaluation of the Alignment of Grade 8 and Grade 12 NAEP to an Established Measure of Job Preparedness:** In its June 2009 report, *Making New Links: 12<sup>th</sup> Grade and Beyond*, the Technical Panel on 12<sup>th</sup> Grade Preparedness Research recommended that content alignment studies be conducted to examine the structure and content of various assessments relative to NAEP. The purpose of such content alignment would be to determine whether the scores on NAEP and the other assessments convey similar meaning in terms of the knowledge and skills of examinees. In fact, the panel specifically recommended that content alignment studies be conducted between NAEP and WorkKeys to determine the correspondence between the content domain assessed by NAEP and that of WorkKeys. If the alignment is relatively high, or even moderately high in some cases, then statistical relations between NAEP and WorkKeys may allow for the interpretation of NAEP results in terms of how WorkKeys would typically be interpreted. Using WorkKeys as a measure of job training preparedness allows the comparison of findings from this research to findings from previous content alignment studies with WorkKeys.  
  
HumRRO extended prior analysis of the relation of NAEP to WorkKeys by including the NAEP grade 8 assessments and by expanding the method for assessing content alignment. ACT provided operational WorkKeys items in support of the study. The study method followed the Governing Board content alignment design document for preparedness research studies, with some modifications. The two-pronged approach included alignment of: (a) WorkKeys to the NAEP frameworks, and (b) NAEP items to the framework from which WorkKeys was developed.
2. **O\*NET Linkage Study:** This study a) identified relevant linkages between the National Assessment of Educational Progress (NAEP) and training performance requirements for selected occupations, and b) compared the levels of knowledge, skills, and abilities (KSAs) required for the relevant NAEP content to the levels of KSAs required for the relevant job training content. For this study, tasks (i.e., performance requirements) for each occupation were extracted from O\*NET. The O\*NET, or Occupational Information Network, is the U.S. Department of Labor's occupational information database.
3. **Technical Advisory Panel (TAP) Symposium:** HumRRO assembled a technical advisory panel (TAP) of five experts in educational measurement and five experts in industrial-organizational (I-O) psychology to review extant research and to generate ideas for commissioned papers on preparedness. The TAP met in Washington D.C. in late October

2013. This brainstorming session included presentations by Governing Board and HumRRO staff describing findings from previous studies and descriptions of other studies currently underway, followed by an open discussion of issues and possible additional areas of investigation. Each panelist was asked to use this information to propose a paper that he/she could develop. TAP members submitted nine proposals from which Governing Board staff commissioned five papers. Panelists developed three of these papers and presented them in a TAP Symposium on August 20, 2014:

- *Using 8<sup>th</sup> and 12<sup>th</sup> Grade NAEP to Measure Student Readiness for Careers*, Barbara Plake, University of Nebraska – Lincoln
- *Grit: A Useful Concept in College and Career Preparedness?* Ann Marie Ryan, Michigan State University
- *Relating NAEP to Commercial Off-the-Shelf Measures*, Nancy Tippins, Corporate Executive Board – Valtera Corporation

In addition to these three tasks, HumRRO produced a comprehensive project report at the conclusion of the contract. The draft report is currently under review by the Governing Board.

***May 2015 Update:***

This project is now complete. The final reports are available on our website at:  
<http://www.nagb.org/what-we-do/preparedness-research/types-of-research/content-alignment.html>.

## **Technical Advisory Panel (TAP) Members**

### **John Campbell**

Professor of Psychology  
University of Minnesota  
(Member, NAGB Technical Panel on 12<sup>th</sup>  
Grade Preparedness Research, 2007-2008)

### **Michael Campion**

Herman C. Krannert  
Professor of Management  
Purdue University

### **Gregory Cizek**

Professor of Educational Measurement  
and Evaluation  
University of North Carolina at Chapel Hill

### **Brian Gong**

Executive Director of Center for Assessment  
National Center for the Improvement of  
Educational Assessment, Inc.

### **Ronald Hambleton**

Distinguished University Professor,  
Educational  
Policy, Research, & Administration  
Executive Director, Center for Educational  
Assessment  
University of Massachusetts at Amherst

### **Suzanne Lane**

Professor, Research Methodology  
University of Pittsburgh School of  
Education

### **Barbara Plake**

University Distinguished Professor,  
Emeritus  
University of Nebraska-Lincoln

### **Ann Marie Ryan**

Professor of Psychology  
Michigan State University

### **Nancy Tippins**

Senior Vice President  
CEB Valtera



## COLLEGE COURSE CONTENT ANALYSIS

### **Project Status Update** **Contract ED-NAG- 12C-0003**

The College Course Content Analysis (CCCA) study is one of a series of studies contributing to the National Assessment of Educational Progress (NAEP) Program of 12th Grade Preparedness Research conducted by the National Assessment Governing Board (NAGB). The purpose of the CCCA study is to identify a comprehensive list of the reading and mathematics knowledge, skills, and abilities (KSAs) that are pre-requisite to entry-level college mathematics courses and courses that require college level reading based on information from a representative sample of U.S. colleges. The Educational Policy Improvement Center (EPIC) is the contractor working for the Board to conduct this study.

Another goal of the CCCA study is to extend the work of the two previous preparedness studies—the Judgmental Standards Setting (JSS)<sup>1</sup> study, implemented in 2011 and the Job Training Program Curriculum (JTPC) study, implemented in 2012. The CCCA study is designed so the results can be compared to the JSS and JTPC studies, reporting on how this new information confirms or extends interpretations of those earlier studies. The design of the CCCA study is based on the JTPC study but with modifications based on the lessons learned.

The project is now complete. The final report is now available on the Governing Board’s website at: [http://www.nagb.org/content/nagb/assets/documents/what-we-do/preparedness-research/judgmental-standard-setting-studies/College\\_Course\\_Content\\_Analysis.pdf](http://www.nagb.org/content/nagb/assets/documents/what-we-do/preparedness-research/judgmental-standard-setting-studies/College_Course_Content_Analysis.pdf).

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<sup>1</sup> National Assessment Governing Board. (2010). *Work Statement for Judgmental Standard Setting Workshops for the 2009 Grade 12 Reading and Mathematics National Assessment of Educational Progress to Reference Academic Preparedness for College Course Placement*. (Higher Education Solicitation number ED-R-10-0005).

## OVERVIEW OF REFERENCED ASSESSMENTS

For additional background information, the following list presents a brief description of the assessments referenced in the phase two academic preparedness research studies. In each case, only the mathematics and reading portions of the assessments are the targets for analysis, although analyses with the composite scores may be conducted.

- ACT – The ACT assessment is a college admissions test used by colleges and universities to determine the level of knowledge and skills in applicant pools, including Reading, English, Mathematics, and Science tests. ACT has *College Readiness Standards* that connect reading or mathematics knowledge and skills and probabilities of a college course grade of “C” or higher (0.75) or “B” or higher (0.50) with particular score ranges on the ACT assessment.
- ACT Explore – ACT Explore assesses academic progress of eighth and ninth grade students. It is a component of the ACT College and Career Readiness System and includes assessments of English, Mathematics, Reading, and Science. ACT Explore has *College Readiness Standards* that connect reading and mathematics knowledge and skills and probabilities of a college course grade of “C” or higher (0.75) or “B” or higher (0.50) by the time students graduate high school with particular score ranges on the Explore assessment.
- SAT – The SAT reasoning test is a college admissions test produced by the College Board. It is used by colleges and universities to evaluate the knowledge and skills of applicant pools in critical reading, mathematics, and writing. The SAT has calculated preparedness benchmarks are defined as the SAT scores corresponding to a 0.65 probability of earning a first-year college grade-point average of 2.67 (B-) or better.

### **Evaluation of NAEP Achievement Levels**

**Objective** To receive a brief informational update on the current status of the independent evaluation of NAEP achievement levels that is being performed by the National Center for Education Evaluation and Regional Assistance (NCEE), part of the Institute for Education Sciences (IES). Ongoing updates will be provided at each COSDAM meeting.

### **Background**

The NAEP legislation states:

The achievement levels shall be used on a trial basis until the Commissioner for Education Statistics determines, as a result of an evaluation under subsection (f), that such levels are reasonable, valid, and informative to the public.

In providing further detail, the aforementioned subsection (f) outlines:

#### **(1) REVIEW-**

- A. IN GENERAL- The Secretary shall provide for continuing review of any assessment authorized under this section, and student achievement levels, by one or more professional assessment evaluation organizations.
- B. ISSUES ADDRESSED- Such continuing review shall address--
  - (i) whether any authorized assessment is properly administered, produces high quality data that are valid and reliable, is consistent with relevant widely accepted professional assessment standards, and produces data on student achievement that are not otherwise available to the State (other than data comparing participating States to each other and the Nation);
  - (ii) whether student achievement levels are reasonable, valid, reliable, and informative to the public;-
  - (iii) whether any authorized assessment is being administered as a random sample and is reporting the trends in academic achievement in a valid and reliable manner in the subject areas being assessed;
  - (iv) whether any of the test questions are biased, as described in section 302(e)(4); and

- (v) whether the appropriate authorized assessments are measuring, consistent with this section, reading ability and mathematical knowledge.

(2) REPORT- The Secretary shall report to the Committee on Education and the Workforce of the House of Representatives and the Committee on Health, Education, Labor, and Pensions of the Senate, the President, and the Nation on the findings and recommendations of such reviews.

(3) USE OF FINDINGS AND RECOMMENDATIONS- The Commissioner for Education Statistics and the National Assessment Governing Board shall consider the findings and recommendations of such reviews in designing the competition to select the organization, or organizations, through which the Commissioner for Education Statistics carries out the National Assessment.

### **Evaluation of NAEP Achievement Levels Contract**

The National Center for Education Evaluation and Regional Assistance (NCEE), part of the Institute for Education Sciences (IES), will administer the Evaluation of the NAEP Achievement Levels. On September 29, 2014, NCEE awarded a contract to The National Academy of Sciences to perform this work.

Objectives for the evaluation include the following:

- Determine how "reasonable, valid, reliable and informative to the public" will be operationalized in this study.
- Identify the kinds of objective data and research findings that will be examined.
- Review and analyze extant information related to the study's purpose.
- Gather other objective information from relevant experts and stakeholders, without creating burden for the public through new, large-scale data collection.
- Organize, summarize, and present the findings from the evaluation in a written report, including a summary that is accessible for nontechnical audiences, discussing the strengths/ weaknesses and gaps in knowledge in relation to the evaluation criteria.
- Provide, prior to release of the study report, for an independent external review of that report for comprehensiveness, objectivity, and freedom from bias.
- If the optional tasks are authorized by ED, plan and conduct dissemination events to communicate the conclusions of the final report to different audiences of stakeholders.

**Design:**

This study will focus on the achievement levels used in reporting NAEP results for the reading and mathematics assessments in grades 4, 8, and 12. Specifically, the study will review developments over the past decade in the ways achievement levels for NAEP are set and used and will evaluate whether the resulting achievement levels are "reasonable, valid, reliable, and informative to the public." The study will rely on an independent committee of experts with a broad range of expertise related to assessment, statistics, social science, and education policy. The project will receive oversight from the Board on Testing and Assessment (BOTA) and the Committee on National Statistics (CNSTAT) of the National Research Council.

Members of the interdisciplinary review committee were selected in early 2015 (see below), and the committee is expected to meet over the course of 2015. The report from the evaluation is expected to be released in 2016 and will be announced on <http://ies.ed.gov/ncee/>.

<b>Name</b>	<b>Affiliation</b>
Dr. Christopher F. Edley, Jr. (Chair)	University of California, Berkeley
Dr. Peter Afflerbach	University of Maryland, College Park
Dr. Sybilla Beckmann	University of Georgia
Dr. H. Russell Bernard	University of Florida
Dr. Karla Egan	National Center for the Improvement of Educational Assessment
Dr. David J. Francis	University of Houston
Dr. Margaret E. Goertz	University of Pennsylvania
Dr. Laura Hamilton	The RAND Corporation
Dr. Brian W. Junker	Carnegie Mellon University
Dr. Suzanne Lane	University of Pittsburgh
Ms. Sharon J. Lewis	Retired
Dr. Bernard L. Madison	University of Arkansas
Dr. Scott Norton	Council of Chief State School Officers
Dr. Sharon Vaughn	The University of Texas at Austin
Dr. Lauress L. Wise	HumRRO

Additional information about the Committee and project activities is available at: <http://www8.nationalacademies.org/cp/projectview.aspx?key=49677>. The first Committee meeting took place in Washington, DC on February 19-20, 2015. Governing Board staff attended the open session and made a presentation to the Committee on the history of the NAEP achievement levels setting activities. The next meeting of the Committee is planned for May 27-28, 2015. Governing Board staff will attend the open session on the afternoon of May 27<sup>th</sup> to engage in discussion about the interpretations and uses of NAEP achievement levels.