

MINUTES

**JOINT SUBCOMMITTEE ON GRADE INFLATION
OF THE
HOUSE AND SENATE INTERIM COMMITTEES ON EDUCATION**

**10:00 A.M.
Monday, May 24, 2010
Room 171, State Capitol
Little Rock, Arkansas**

Representative Bill Abernathy, the House Co-Chair of the Joint Subcommittee on Grade Inflation, called the meeting to order at 10:00 a.m.

LEGISLATIVE MEMBERS OF THE JOINT SUBCOMMITTEE ON GRADE INFLATION OF THE HOUSE AND SENATE INTERIM COMMITTEES ON EDUCATION IN ATTENDANCE:

Senator Jimmy Jeffress, Senate Co-Chair; Representative Bill Abernathy, House Co-Chair; and Representative Eddie Cheatham.

NON-LEGISLATIVE MEMBERS OF THE JOINT SUBCOMMITTEE ON GRADE INFLATION OF THE HOUSE AND SENATE INTERIM COMMITTEES ON EDUCATION IN ATTENDANCE:

Dr. Richard Abernathy; Mr. Ron Harder; Mr. Gerald Harper; Ms. Janet Johnson; Dr. Tom Kimbrell; Ms. Mary May; and Dr. Larry Smith.

OTHER MEMBERS OF THE GENERAL ASSEMBLY IN ATTENDANCE: Senator Paul Bookout; Senator Shane Broadway; Representative Janè English; Representative Jim Nickels; and Representative Jon Woods.

Without objection, the minutes of April 27, 2010, were approved as written.

Discussion of the Arkansas Department of Education's HIVE Website

Mr. James Boardman, Assistant Commissioner, Research and Technology, Arkansas Department of Education (ADE), was recognized. Mr. Boardman briefly described the history of grants received by the ADE for research, collecting educational data, giving access to data, and using data. He said that the ADE had reached a point in its data collection and analysis capabilities to be able to assist legislative committees and others look at policies affecting schools, to evaluate the effectiveness of those policies, and to consider options, as necessary. Mr. Boardman then introduced personnel from the Arkansas Research Center (ARC) at the University of Central Arkansas (UCA), who have been instrumental in the development of the *hive* Web site:

Dr. Neal Gibson, Research and Technology, ADE

Dr. Greg Holland, Research and Technology, ADE

Dr. Patrick Carmack, Assistant Professor of Mathematics, UCA (*absent*)

Dr. Lisa Daniels, Associate Professor, Teaching and Learning, UCA, and

Ms. Megan Swann, graduate research assistant

Mr. Boardman said that Dr. Gibson, who got *hive* started in Arkansas, would be making a presentation to show how *hive* works. He would first demonstrate data visualizations, show how to access and use data, and give examples of available resources. In the second part, he would look at research on remediation rates and ACT, and at a preliminary model on grade inflation.

Dr. Neal Gibson, Project Manager, Research and Technology, ADE, was recognized. Accompanied by a PowerPoint presentation, "*hive*: Crowdsourcing Education Data," Dr. Gibson mentioned that the ADE is partnering with Dr. Daniels and others at UCA in the newly created ARC office.

Dr. Gibson defined ARC as primarily having three purposes:

1. making data usable for teachers and administrators in schools, and for parents who may be trying to decide where to send a child, *i.e.*, *hive*
2. data integration as a way to match records together in a way that completely protects privacy, and
3. policy research.

He related an example of Dr. Holland's program on data integration that took 100,000 records from Explore and Plan, the most troublesome data that the ADE gets, and ran through all 100,000 records. The program matched an outstanding 99%.

Dr. Gibson explained that *hive* came out of the Arkansas Data Use Project. He said that Ms. Margaret Heritage, Assistant Director for Professional Development at the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) at UCLA, and a nationwide expert on formative assessment, had heard about the work being done in Arkansas, and wanted to see first-hand what teachers and administrators did when they had access to data. Ms. Heritage was with the Assessment and Accountability Comprehensive Center (AACC) on that project, and the Mid-Continent Comprehensive Center (MC3) at the University of Oklahoma was the go-between because federal funds were involved. Out of that project came two things: 1) a step-wise process to take educators through a thorough analysis of their data, and 2) the visualization tool called *hive*.

Dr. Gibson said that one of the things he introduced with this work is individual student growth. He presented a case study with real data, but not real names, illustrated by slides:

Slide: Who Had More Growth?

Noah and Ben are two students. On a Grade 5 2008 Math test, Noah got a 702. The next year, on a Grade 6 2009 Math test, he got a 775. Subtracting one number from the other, there was an increase of 73 points. His buddy, Ben, didn't do nearly as well. He got a 425 on the Grade 5 2008 Math test and a 527 on a Grade 6 2009 Math test. Subtracting one number from the other, there was an increase of 102 points. So, the question is which student had more growth. Logically, one would think it was Ben, because of the greater increase in points. But, this is tricky to interpret because Noah is already at the top of the performance level, so he doesn't have nearly the numerical room to grow compared to Ben. Consider how far Ben has to go before he gets to Noah. The solution is a conditional distribution.

Slide: Distribution: Students Scoring 600 in 2005

This is a conditional distribution with 2005 and 2006 scores creating a transverse bell curve, two bell curves running crosswise. Taking all the students who scored a 600 in 2005, and comparing that data to what they scored the very next year, makes a bell curve. Wherever students end up on that bell curve indicates their percentile.

Slide: Quantile Regression

A quantile regression program, usually called the Colorado Growth Model, was used in which students' scores from prior years were split up into ten (10) cohorts. Each one of those cohorts is taken with what students score the next year, and a percentile from 1 to 99 is assigned. The reason is to compare Noahs to Noahs and Bens to Bens. This gives each individual student a *student growth percentile*.

Slide: Who Had More Growth?

Going back to Noah and Ben, Noah's growth, even with a smaller increase, was actually 54. It was actually above-average growth, while Ben's growth was actually below average. The key point here is that Noah was advanced in 2008, and he had above-average growth in 2009, so Noah can be expected to be advanced again, while Ben was below basic in both years and had below-average growth. Unless Ben can receive intervention, his proficiency may slip. It's not enough to make students proficient, they have to be kept proficient.

Slide: Aggregated Growth Percentiles

Once there is an individual student growth percentile for each student, it can be aggregated, in this case, at the school level. This is a "bubble" chart from the Little Rock School District. The size of a bubble represents the number of students tested. Growth is on the X axis, while the scale score is on the Y axis. This is another dimension by which schools can be classified. In this case, this is Grade 8 2009 Math. The top two schools in growth are magnet schools. The lowest performing school is Cloverdale Middle School, which will be reconstituted this year.

Dr. Gibson described *hive* as an open public Web site; however, an individual needs to register in order to post, to make a data visualization or to make comments, and to enable other people to respond to the post. A district school or a teacher may register and be authorized to see individual student data, but that data is protected at the public level. He then logged on to the Web site, hive.arkansas.gov, and demonstrated visualizations of individual student's scores and growth, including "scatter" plots, "scatter" bars, and "bubble" charts. Dr. Gibson navigated to the Help section and to other links, accessing data and showing how the data can be used.

In the discussion that followed, topics included:

- ⇒ Capturing scores of transient students,
- ⇒ Comparing low-performing students to low-performing students and high-performing students to high-performing students to determine growth,
- ⇒ Performance of high-performing students reaching a plateau nationwide,
- ⇒ Giving information and context to educators through visualizations,
- ⇒ Arkansas is the only state in the region looking at an individual student growth percentile,
- ⇒ Interest in cross-state collaborations, and its importance in moving forward to a common core,
- ⇒ Eventual home for *hive* will be the Arkansas Educational Television Network (AETN)'s Internet Delivered Education for Arkansas Schools (IDEAS) portal so school personnel can run through the modules and receive professional development credit,
- ⇒ Posting data without context, and correcting data on a public site,
- ⇒ Determining the reliability of, and having confidence in, data,
- ⇒ Looking at variables once research is produced,
- ⇒ Understanding differences within the context of testing, and
- ⇒ Giving school districts and local schools the analytic capability for data.

Dr. Gibson continued the presentation with a discussion about teacher effectiveness. He related a story about recently hearing Dr. Thomas Kane, a professor of education and economics at the Harvard Graduate School of Education, speak about the Measures of Effective Teaching (MET), a project of the Bill and Melinda Gates Foundation. Dr. Gibson said that he had disputed two of Dr. Kane's points, about teacher effectiveness and about differences in teacher preparation programs, and had disproved those points as not being correct in Arkansas with research. He showed additional visualizations of teacher effectiveness.

Discussion of Student Completion Research Conducted by the Arkansas Department of Education

Dr. Gibson went on to talk about the research done with Dr. Daniels and Dr. Carmack on college success, specific to Arkansas, that was published in the Journal of College Remediation. The ADE/ADHE Study utilized three

years of data from the Arkansas Department of Higher Education (ADHE) for three cohorts of students, first-year freshmen from 2006, 2007, and 2008. This data was able to be combined with K-12 data to determine the best predictors of college success. In the ACT composite score, the correlation was .418, a fairly low correlation. The highest correlation was a HS GPA of .601. Dr. Gibson showed visualizations of ACT and First Year College GPA, and AP Participation and First Year College GPA. He explained that on the ACT, above a 25 was a very good predictor of first-year college GPA, while below a 25, it was not. He indicated that the End-Of-Course (EOC) exams are not good predictors. Mr. Gibson also discussed outcomes of AP participation.

Finally, Dr. Gibson displayed a slide, Grade Inflation Comparison, that contained data on students who went to college from grade-inflated schools. The data showed that the GPA from grade-inflated schools was a good predictor of HS GPA. He said that this slide was prepared for presentation to the legislators and was not a rigorous study; but it does indicate the necessity of looking into this issue in greater detail.

Additional discussion with the Subcommittee followed on topics that included:

- Source of data for correlations on the ADE/ADHE Study,
- The importance of grade inflation in college success rates,
- The relevance of grade inflation to lottery scholarships,
- Framing as many questions as possible in as much detail as possible to be answered via data analysis for what is used for the lottery scholarship,
- Students who take AP classes vs. those who don't; funding of AP exam,
- Composition of high school students' GPA; participation in extracurricular activities,
- Students taking concurrent credit classes and distance learning classes,
- The need for an evaluative formulation on the effectiveness of distance learning for students, and
- The need for a study looking at the predictors of a student taking a foreign language in high school and the impact on the student's GPA.

Representative Abernathy thanked Mr. Boardman and Dr. Gibson for the excellent report.

Discussion of Proposed Model for Measuring Grade Inflation

Mr. Michael Brown, Legislative Analyst, Bureau of Legislative Research, was recognized. Mr. Brown spoke from a PowerPoint presentation, "A Proposed Measure of Grade Inflation." He commented that some interesting evidence has been seen today that *may* suggest that wrong data is being used for measurements of grade inflation, especially if higher correlations among grade-inflated schools are seen. He said the question is the identification of the common denominator, and that is the grade-inflation list. This proposed measure will attempt to take a look at an alternative to the current way that grade inflation is measured; and will be done by looking at an entire population of students within a school, not just a restricted population.

Mr. Brown emphasized that only the upper end of the distribution of students was being considered in his last presentation to the Subcommittee. This presentation looks at the entire distribution of students, and asks how does that help or hurt the measure. Mr. Brown cautioned that this is only a proposed measure, and is not designed to be the solution. It is, however, designed to capture and address the Subcommittee's concerns, and to have a starting point from which policy decisions can be made. He said that, first, the idea of construct validity would be reviewed. What is grade inflation? How is it measured? What is being captured with grade inflation, and how does that compare to college readiness? Next, the new measure of grade inflation that the Bureau of Legislative Research (BLR) has developed would be introduced, and, finally, the question of how this measure addresses the concerns of the Subcommittee would be examined.

Mr. Brown stated that in order to accurately measure grade inflation, it is necessary to separate the idea of measuring grade inflation and college readiness. He said that this proposed measure of grade inflation will ensure grade inflation is being accurately measured, but does not address the issue of college readiness.

Mr. Brown then walked the Subcommittee through the four steps in which this particular methodology calculates grade inflation:

1. Clean Data
 - Remove Observations Missing a Course GPA or EOC Score
 - Convert Each School's Grading System into a 4.0 Scale
2. Generate Standardized Distributions
 - Algebra EOC & Algebra Course Grades
 - Geometry EOC & Geometry Course Grades
3. Perform a Statistical Test (paired t-test) on the Standardized Algebra & Geometry Scores
4. Review the Statistical Significance of the Test Results.

He emphasized that it's very important when doing statistical analysis, especially in developing a measure, to determine its sturdiness, or robustness. Robustness testing is the process of determining the accuracy and consistency of a measure. In order to test the robustness of this measure, alternative statistical tests (non-parametric) were used to examine accuracy. Even in schools with very small samples (8 students), the test was able to determine if a school contained grade inflation. The academic basis for application for this technique is a paper, "Using State Tests in Education Experiments: A Discussion of the Issues," May et al (2009). The methodology was applied, and the results calculated and shown in a summary table, "Grade Inflation Stats Proposed Methodology." This list of grade-inflated schools with this methodology is substantially different from the previous ones, and only a handful of schools overlapped.

Mr. Brown concluded the presentation with a review of fourteen (14) concerns, and a discussion of problems/benefits of this methodology in a Cost-Benefit Analysis. He indicated some policy decisions that will need to be made with this measure, if it is acceptable, including:

- Is this a valid measure?
- How many subject areas should be included in the measure?
- How many subject areas need to be grade-inflated for a school to be a grade-inflating school?
- Do we look at grade inflation as a snapshot in time or consider the school's performance over a period of time?

A discussion of the presentation ensued that included the following topics:

- o The implications of a change in methodology for students applying for a scholarship,
- o The concern over the grade inflation issue causing an adverse influence on a well-rounded education,
- o The need for a policy that addresses not only grade inflation, but provides corrective measures for schools identified as being grade-inflated, and
- o The risks of establishing predictors that discredit schools and eliminate students' chances to attend college.

Representative Abernathy thanked Mr. Brown for the report.

Representative Abernathy announced that the next meeting would be for the Joint Adequacy Evaluation Oversight Subcommittee at 1:30 p.m. today, May 24, 2010, in Room 171 of the State Capitol.

There being no further business, the meeting adjourned at 12:15 p.m.