NMPED Science Curriculum Review of Evidence

Curriculum Name: Holt McDougal Biology ©2008

Publisher: Houghton Mifflin Harcourt, publishing as Holt McDougal
Number of Studies Submitted: 2
Number of Studies Reviewed: 2
Grade(s) of Studies Reviewed: 9-11

Average Rubric Ratings:

Criteria	Average Rating Across All Studies
Experimental Design	1
Sample	1.5
Methodology	2
Measures	2
Studies	1
Reporting Results	1
Investigators	2
Total Score	10.5
Average Subscale Score	1.5

Narrative:
Holt McDougal, a division of Houghton Mifflin Harcourt Publishing Company, contracted with Educational Research Institute of America (ERIA) to conduct instructional validation studies on the secondary biology program, *Holt McDougal Biology ©2008*, in the states of Georgia and California. In both studies, the states had clearly delineated state standards and comprehensive state assessments in biology. The studies followed a pretest/posttest design to compare performance before the implementation of the science program (pretest) and after 1 to 2 years into the program implementation (posttest) using public state testing data from 2006-2008 for California and 2007-2008 for Georgia collected via the Internet. There were 59 and 72 schools from California and Georgia, respectfully, included in the studies.

Researchers used paired comparison *t*-tests to compare standard scores on pretests and posttests. In the Georgia study, they also conducted an Analysis of Covariance (ANCOVA) to eliminate the effects of significant variables that differ between two groups such as a pretest score difference from use of other biology programs. Scale scores on the state assessments showed statistically significantly increases for the groups. In addition, researchers computed the percentages of students at each achievement level. The average percentage of students scoring at the highest achievement level increased while the average percentage of students scoring at the lowest achievement level decreased. A third analysis compared socio-economic status (SES) levels of the schools. The Georgia study subdivided the data into two SES groups and found each group had statistically significant gains; the California study subdivided the data into three SES groups and showed each group had statistically significant gains.

Overall Quantity and Quality of Evidence:
The two studies submitted for review provide some evidence for the effectiveness of the science program. There are statistically significant positive results from the pretest/posttest data. The studies do not report effect size as a result of the use of the science program. There are disaggregated data only for SES groups, although minority data was supplied with each school in the analyses. SES groups were determined by ranking the percentage of students enrolled in free/reduced lunch programs for the schools and then dividing into three equal subgroups. This SES distribution allowed for variation ranges often not attributed to SES groups. Based on the studies, there is good evidence of program efficacy of the *Holt McDougal Biology ©2008.*

References of Submitted Studies:

Educational Research Institute of America (October 2009). Student Performance Report: An Examination of Program Effectiveness *Holt McDougal Biology* ©2008 Result in California, Report Number 370.

Educational Research Institute of America (October 2009). Student Performance Report: An Examination of Program Effectiveness *Holt McDougal Biology* ©2008 Result in Georgia, Report Number 373.