Position Statement
Approved by the
CASE Board of Directors
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Science Accountability Systems

ISSUE

Accountability for instruction is exclusively defined as high-stakes state testing, which includes attaching consequences to outcomes. As such, these state assessments serve as a lever for implementation and influence the amount and breadth of instruction. In the current climate of accountability policies that are dominated by reading and mathematics, science is de-emphasized at the TK-5 level - *what gets tested gets taught.*

Background

Test-based accountability, emphasized by *No Child Left Behind (NCLB)*, has made the central mission of our schools to increase test scores. During NCLB, districts throughout the US substantially increased the amount of time spent on language arts and math in elementary schools - 47 percent increase in language arts and a 37 percent increase in math, and decreased time allotted to other subjects, including science, social studies, art, and music. (McMurrer, 2007).

The educational practice of increasing ELA time, in particular reading, and decreasing instructional time for content subjects such as science show that reading comprehension is misunderstood. It's treated as a general skill that can be applied with equal success to all texts. Rather, comprehension is intimately intertwined with knowledge, therefore a strong school curriculum that systematically builds a student's store of knowledge must be a priority in the lower grades. The Common Core State Standards (CCSS) have a commitment to the understanding that complex text requires complex knowledge. To read and understand complex texts, the CCSS say, skills are not enough. Students also need a "foundation of knowledge" in "history/social studies, science, and other disciplines," which will "give them the background to be better readers in all content areas." (***EDHirsch-Report-Papers-Final***)

In addition to a substantial decrease in the amount of science taught, science professional learning offered at the K-5 level also decreased, resulting in a narrowing of the science curriculum and instruction to focus on tested topics and an increase in teacher-centered instruction.

The California Association of Science Educators (CASE) believes a comprehensive educational accountability system includes multiple measures and emphasizes the importance of providing access to high-quality science education for all students, particularly students underserved by the education system.

The Next Generation Science Standards (NGSS) present a unique opportunity to make science a priority in TK–5 classrooms, since they fully integrate with the new mathematics and English language arts standards. With the release of the Fall 2018 ***California School Dashboard***, the California Department of Education (CDE) has officially signaled to the field that the results of the new science assessment, known as the California Science Test (CAST) and California Alternate Assessment (CAA-Science), will be included as a state measure in the future. This is an opportunity to advocate at the local level for planning for and investment in NGSS implementation to ensure all students have access to high-quality science education.

State measures include absenteeism, graduation rate, suspension rate, and academic (which includes performance in English language arts/literacy and mathematics). Future state measures will include performance on the California Science Test.

Position Statement

State and local accountability systems need to go beyond high-stakes state testing. The California Association of Science Educators (CASE) believes a comprehensive educational accountability system includes multiple measures and emphasizes the importance of providing access to high-quality science education for all students, particularly students underserved by the education system.

Declaration

Statewide and district accountability systems must provide timely feedback to schools, districts, or LEA's, school district personnel, teachers, and the communities they serve. CASE believes a science accountability system must:

- Provide ***equitable instructional time for high-quality science*** in elementary school to support the implementation of the California Next Generation Science Standards.
- Place the CAST results as a state indicator on the CA Dashboard on par with ELA and math:
  - to convey the understanding that science instruction is a priority at all levels of the educational system;
  - to report student achievement data across the 3 dimensions;
  - to provide information that will be used to communicate the overall performance of schools and Local Education Agencies (LEAs) with respect to learning in science;
  - to ensure schools, districts, or other LEAs falling short of standards for performance and expectations for improvement in science will receive additional support and assistance through ***California's system of support.***

- The CAST needs continual refinement to better assess NGSS implementation and meet the needs of schools and teachers.
- Include ***Local Control and Accountability Plan indicators*** of high-quality science education to evaluate and inform the overall quality of every student's education.
- Include local measures of benchmark and embedded assessments to make schools accountable for teaching high quality science and to inform science teaching. The short cycle and medium cycle of the coherent assessment system focuses on site or district level assessments to see how well students are demonstrating their understanding of NGSS.
- Increase transparency of educational practices amongst teachers to encourage and support continuous improvement of science instruction (collaborative planning and analysis of student work).
- Design and promote the frequent use of science observation protocols by site leaders.
- Create professional accountability for site leaders.

REFERENCES

1. McMurrer, J. (2007). Choices, changes, and challenges: Curriculum and instruction in the NCLB era. Washington, DC: Center on Education Policy.
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3. Implementing the NGSS, PICC REPORT, Niu Gao, Sara Adan, Lunna Lopes, and Grace Lee, March 2018
4. ***Developing Assessments for the Next Generation Science Standards***, National Research Council, 2014
5. ***Reimagining accountability in K–12 education***, Brian P. Gill, Jennifer S. Lerner, and Paul Meosky 2016