

WASHINGTON SCIENCE ADVISORY PANEL

April 16, 2008 Meeting Notes

The Washington Science Advisory Panel held a third meeting to review the recommendations as presented in the Interim Report for the current Washington science standards, submitted by David Heil & Associates, Inc. Findings from the public survey and focus groups were presented by the Project Team, followed by Jeff Vincent presenting the Science Graduation Requirements and Science Action Plan. The panel meeting was held at the Puget Sound ESD, in Renton, on April 16th from 10:00am to 4:00pm. This meeting was intended to provide a review of the recommendations, provide a project update, present findings from the public input and provide panel members with an open forum for discussion. This document summarizes notes from the meeting for each of the following agenda items:

- **Welcome and Project Updates**
Introductions by all attendees
David Heil, Co-Director
- **Presentation of Review of Recommendations as Presented in the Interim Report**
Presentation by Rodger Bybee, Co-Director
Open forum
- **Presentation of Survey Findings**
Presentation by David Heil, Co-Director
- **Presentation of Focus Group Findings**
Presentation by Kasey McCracken, Project Manager
Open forum
- **Presentation of Science Graduation Requirements/Science Action Plan**
Presentation by Jeff Vincent

Washington Science Advisory Panel Members in Attendance:

Panel Chair: Jeff Vincent, SBE Board Member

- Jeffrey Bierman
- Georgia Boatman
- Theresa Britschgi
- Chris Carlson
- Grant Fjermedal
- Jen Fox
- Mario Godoy-Gonzalez
- Judy Kjellman
- Sheldon Levias
- Michael McCaw
- Brian MacNevin
- Judy Morrison
- George (Pinky) Nelson
- Kimberly Olson
- Steve Olson
- Ethan Smith
- Barbara Taylor
- Kristen White

DHA Project Team Members in Attendance:

- David Heil, Co-Director
- Rodger Bybee, Co-Director
- Harold Pratt, Co-Director
- Kasey McCracken, Project Manager
- Lauren Seyda, Project Assistant

SBE Staff in Attendance:

- Kathe Taylor, Policy Director

Observers:

- Roy Beven, OSPI Staff
- Mary McClellan, OSPI Staff
- Cinda Parton, OSPI Staff
- Barbara Poyneer, Washington Coalition for Gifted Education

Welcome and Project Updates

David Heil, Co-Director

David Heil provided a brief welcome to the panel, acknowledging that the real focus of this meeting was to present and discuss the voices of public input throughout Washington State.

Presentation of Review of Recommendations as Presented in the Interim Report

Rodger Bybee, Co-Director

Roger Bybee provided a review of the recommendations as they were presented in the Interim Report. Several concerns were raised regarding the coherence between the recommendation review and the rewrite of the standards. These included the coordination and integration between the science standards rewrite team with the math standards rewrite team, whether the two primary audiences – the curriculum specialists and the assessment specialists – would be present beyond 10th grade, and ensuring the rewrite team is clear on the audience of the new document. Application of inquiry and telling kids how science relates to their lives was highly discussed.

Comments and Questions from Discussion:

- Speaking of Recommendation 3, the Project Team clarified the use of standards as outcomes of learning, not as a curriculum document. Jeff Vincent addressed the root of the problem as people turning the standards document into something it's not.
- In response to the K-12 approach and whether the revised standards will include pre-college content, Heil clarified that content will be spread throughout grades K-12, providing richer course work in later grades.
- Concern was expressed about the new standards document reducing the level of vagueness compared to the current document, primarily regarding bullets used for clarification under each recommendation.
- A question was raised about grade bands and writing standards for grade 12 if 12th grade is not required. Heil clarified that the standards will be written for a 9-12 grade band, and that it will be up to the local district to decide what to cover at any stage within that band.
- It was suggested that there be separate heading specifically for things that standards *shouldn't* do, e.g. standards *shouldn't* limit opportunity. It was agreed that this tactic might reduce vagueness in the document.
- In response to providing teachers guidelines on whether they are meeting the standards, it was suggested that the rewrite team provide supplementary documents

to help clarify development and use of the standards. This will limit burden on teachers.

- In terms of “inquiry,” Mary McClellan summarized the panel’s input: “I hear you saying that you want inquiry standards to be strengthened beyond just skills but to the critical thinking that comes with that. Analysis, synthesis, use of evidence, logical progression in students’ thinking, as opposed to being able to just set up and design an experiment.”
- Ensuring kids will get jobs is important, as is getting them excited about science. This will help the economy and will minimize recruitment from other countries.
- There was confusion regarding the bullets under the recommendation. The Project Team clarified by saying the recommendation is about standards, and if the bullets are failing to clarify that recommendation, they should be changed or deleted. It was suggested that the last bullet for Recommendation 8 be moved to Recommendation 4 (discussing implementation).
- Recommendation 9, covering Science and Technology, was a topic of discussion. It was said that many teachers thought only of computers when thinking of science and technology. It will be important for curriculum writers to focus on “innovative design.”
- There was much discussion around inquiry, application, and “real-life examples.” It was concluded that the existence of Recommendation 10 (Science in Personal and Social Perspectives) will integrate and expand on connecting science to kids’ lives. Massachusetts provides rich examples of this.
- Also discussed was the integration of various fields within science. There is geographical relevance and facts that make it difficult to cross EALRs. However, topics such as population and climate issues have deeper topics that should be understood by students. Topics can “find a home” in many places and having them in the standards sets the stage for them to be implemented at all. After that, instructional materials is how they’ll be implemented. Some topics are interdisciplinary by nature, although sometimes it may be good to see topics up-close and in detail rather than to have to stand back to see the whole topic.
- Regarding the rewrite of the standards document, one panel member commented that they are not the audience. The audience is curriculum designers who have time and the professional expertise to interpret and piece the parts together. This standards document cannot dictate curriculum development or professional development.
- Heil commented that the Project Team has tried not to be overly prescriptive because there will be a team of professional revision writers and it is important for them to have a certain amount of poetic license.
- It was suggested that bullet 3 under Recommendation 11 does not work. Instructional strategies should be addressed somewhere, but this is not the place for a “roadmap.” A direct reference to instructional strategies should belong in the implementation part of the report.

Heil thanked the panel for a great discussion. The panel provided fine-tuning and a critical analysis at the appropriate power and message of the recommendations.

Presentation of Survey Findings

David Heil, Co-Director

David Heil briefly discussed the methodology of the Online Feedback Survey. The survey opened online at the WA SBE website on April 7th and will close April 21st. As of Monday, April 14th, there were 329 respondents. Heil proceeded to discuss the findings with accompanying slides. Based on the survey feedback at the time of this meeting, top priorities in undertaking the revision of the science standards included:

- Improve the clarity of the standards.
- Make the document more usable.
- Provide professional development for teachers.
- Focus on depth of content rather than breadth.
- Caution about revising the standards.
- Importance of inquiry, problem solving, and applications.
- Alignment with instructional materials and assessment.
- Creating standards for all students.

Comments and Questions from Panel:

- Responding to a question regarding the difference between “disagree” and “strongly disagree,” Kasey McCracken noted that it is important to go back and look at the narrative comments provided by respondents to fully understand context.
- The population number (n) varies due to the respondents who selected “no opinion.”

Presentation of Focus Group Findings

Kasey McCracken, Project Manager

Kasey McCracken discussed the methodology of the Focus Groups held in Spokane, Wenatchee, and Seattle. Eight to eleven educators and ten to twelve general public members were represented at each group. All participants were in some way involved in science education, whether teachers, principals, district staff, students, parents of students, local employers, college students, and so on. Eight diverse school districts around the state were represented, along with twelve organizations. Preliminary major themes that evolved from these focus groups include:

- Educators value Inquiry, Applications, and Science in Social and Personal Perspectives but find that teachers do not have enough training or time to adequately incorporate them.
- Higher Education Representatives particularly value critical thinking skills.
- Educators feel that standards should be collapsed into a set of “big ideas” or “core concepts.”
- Educators support reorganizing the document.
- Educators would like to see the standards more clearly defined.
- Educators are concerned about extensive revisions to the content of the standards.
- Educators strongly support providing professional development and tools for teachers, particularly at the elementary school level.

Comments and Questions from Panel:

- No college admittance officers were present in the focus groups, but Human Resource managers and knowledgeable students spoke to admittance policy.
- There was concern regarding teachers use of the term “inquiry” while the public uses “critical thinking.” In response, McCracken noted that it is important to distinguish the two terms and provide consistency but it’s not so much what we call it that teachers are concerned about as how you make it happen in the classroom. It was suggested to describe “inquiry” in universal terms.
- Roy Beven responded to a question regarding how students are performing versus how they are exposed to information. Although there is no analysis as to what teachers are doing in the classroom, it can be seen that students do well when asked a low level question on content, but when asked to demonstrate understanding or write a conclusion, there is lower proficiency.
- It was noted that as a state, a lot of time is wasted on working on alignment and filling in gaps rather than on instruction. Heil commented that although prevalent in Washington, this happens everywhere.
- Jeff Vincent commented that the reason we’re looking at standards is because we have a problem that kids are not succeeding in or fulfilling science roles. It is time to take the excuse off the table. Let’s get the standards done so people can’t use it as an excuse to tackle the hard stuff (implementation).
- It is important to note that good tools don’t make teaching easy, but more effective. If you get past the “what,” the teachers will have more ability to focus on other things.
- When asked based on discussions, what areas of the interim report should be revised, the Project Team responded with the following answers:
 - David Heil: Adjust the two statements regarding implementation standards and further defining “inquiry,” clarifying understanding vs. being able to do.
 - Harold Pratt: Ensuring the recommendations are clear enough for the rewrite team.
 - Rodger Bybee: The need for clarification and justification in categories such as inquiry, science in personal and social perspectives, science and technology, and design. Also to clarify what is meant by curriculum instruction.

- Kasey McCracken: Possibly add additional context to narrative based on focus groups, i.e. we're not recommending a total rewrite of the standards.
- Referring to whether there will be an adoption of the National Science Education Standards in the new document, the Project Team commented that the report is not that prescriptive, but instead suggests to "incorporate" the NSES. This recommendation is basically stated in Recommendation 11.
- Kasey McCracken clarified that it is important to not over-interpret percentages from survey data, but instead take a big-picture point of view.
- "Power Standards" were informally defined and discussed. Power standards are thought to be higher level standards than those for the rest of the state. Bellevue, for example, is thought to require more of the kids. Tacoma, on the other hand, does not have power standards.
- Panel members discussed teaching strategies and the level of flexibility given to teachers. It was said that teachers need to make active decisions on what happens in their classroom. Heil responded that the Project Team is trying to adhere to the purpose of standards as to provide a vision for what kids should do. It is very important to acknowledge and encourage flexibility but also to invest in professional development so flexibility is done correctly.
- One panel member commented that on an administrative level, fidelity towards the standards is difficult. Kids this year might be different from kids next year, making teaching curriculum "with a script" hard to do.
- Both Jeff Vincent and the Project Team commented that with so many stakeholders, integrating professional development, instructional development, and assessment developed is a hard task and they are well aware of the gap but not necessarily that there is no alignment.
- It was suggested that inquiry be taught very early, in the beginning of each field within science. A large part of critical thinking is to question, "how did they discover that?" and how does one "find things out?"

David Heil concluded this discussion reminding the panel that the focus and foundation of this report is the standards. There is work to be done in the implementation stage, and the panel is itching to solve this next piece.

Science Graduation Requirements/Science Action Plan
Jeff Vincent, Washington State Advisory Panel Chair