

**OPAS Prepare Workgroup Meeting #2**  
**Tuesday March 20, 2007 – Capital Center and Teleconference**

**Attendees:** Jay Bockelman (OIT), Steve Day (Beaverton SD), Dick Knight (Saturday Academy), Jo Oshiro (OUS/OPAS), Larry Flick (OSU), Chris Steiner (Hillsboro SD), Michal Young (UO)

**Summary as Posted shortly after the meeting:**

Co-chair Sean Gallagher has recently been appointed Superintendent of Lake County Schools, and may be somewhat less active in the short term.

The Workgroup endorsed

- Focus: Increasing the number of students who are prepared for technical careers
- Strategy: Increase the use of improved teaching methods, such as active learning and student inquiry
- Targets:
  - Middle and High School Students
  - Transition between High School and College

and continued detailed discussions of how to make an impact this year. Highlights:

- What are the differences between enhancing academic content in CTE courses with more math and science vs. adding engineering and applied content to traditional courses? Larry Flick will prepare a brief on ways his organization could pursue this more aggressively with OPAS support.
- What do we need to do to leverage the opportunity represented by the new math and science high school requirements? Steve Day will prepare a short white paper, to be edited by Jo, for circulation before the next meeting, which he will not be able to attend.
- How will we identify exemplar programs and teachers? How will we document them? How will we disseminate that information? Dick will contact Carla Faini of Microsoft to explore possibilities. Dick and Jo will work on a straw proposal for a conference of educators, whose call for papers would solicit exemplary programs; and review the steering committee's calendar of events for additional opportunities.
- The workgroup agreed it would be valuable to meet with a panel of college and university people to discuss what makes a successful student. The panel definitely wants at least one of those reps to be the teacher of a small class, intro-level course. For OSU College of Engineering students, success correlates are Insight Resume, SAT scores, and GPA in that order, per the AeA Scholarship program. Insight Resume information was given to Steve Day, who had not seen it before. Dick and Jo will develop the panel concept.

### **Action Items**

- Jo – bring minutes to the next meeting
- Jo – send Larry contact info for Susan Boyanovsky, CCWD; Jim Schoelkopf, ODE; ACE program
- Jo – find reference for the TIMS (sp?) study from Steve Day
- Larry – prepare a brief on how OPAS can help you with the NSF ATE grant which exemplifies adding rigorous academic content to CTE
- Steve – prepare a white paper on how OPAS can connect to and influence the work of the State Assessment and Content Panel for Science (SACPS)
- Jo/ Dick – work on how to contact universities and colleges on the question of student preparedness and what questions to ask
- Dick – work on curricular review of materials gathered by Bruce, Jo and others.

### **Additional Points of Information, Discussion, and Resources**

- Workgroup organization – historically, most of the work got done by all during the meeting time. Should we do something different to overcome the limitations of this model?
- Larry – his NSF ATE (Advanced Technical Education) grant focuses on community college training of technicians as a vehicle to teach via problems in construction engineering -- examine thermodynamics, electricity, and tension, compression, and bending as science areas that relate to construction engineering problems. Larry learned about a digital library – National Science Foundation Library - Applied Math and Science Education Repository (nsdl.org) with multiple URLs representing different pathways through the material (e.g., Applied Math and Science Education Repository amser.org) They are very interested in providing workshops on this resource which seems to be quite extensive and aims at the community college level discussion of what we are talking about in HS.
- Dick: Are we capable of identifying engineering and applied science content that would help teachers? Larry: Yes. When mining a huge database, the next thing is to decide what's worthwhile and how to use it. Mining takes power and time.
- Enhance science with more engineering, and/or enhance PTE/CTE with more science and math?
  - Chris/Jay: The PTE/CTE dissemination route will be big because of Perkins and dual credit. The MS level – material must correlate with science standards. Technology programs in MS are vanishing in many places.
- Steve: expeditionary learning. Personal connections matter. Network to the individual teacher.
- We may have opportunities to influence the direction of education because of the new high school graduation requirements and ODE's redesign of science grade-level standards, all driven by NCLB which in 2008 includes science standards. OPAS needs to be there to claim its territory. We need to change assessments so they center on inquiry, engineering processes, design. Steve will submit a white paper to the workgroup.
- Dick is concerned about adding interest and engagement to traditional math and science using engineering content. We need to be careful not to sacrifice too much content. How

do we give advice that creates more college-bound students and make sure they are successful.

- Steve: The TIMS (?) study. Difference between AP and IB – AP is prescriptive content; IB is much more concerned about deep knowledge and process within an area. Different paradigms. Both can be equally successful in college.
- Additional possible exemplar program/curricula
  - Jay: Microsoft has put together an entire library of stuff – robotics studio simulator and embedded engineering. Packages and tutorials, simulators. Targeting college, but Jay thinks some of the high school students he has worked with could do this. Microsoft paid Georgia Tech to develop this. At the Microsoft Embedded Systems and Robotics Conference, it appears that even research universities may be moving toward more applied classes.
  - We could find additional exemplars by having a conference for educators; the call for papers inviting people to showcase the use of engineering and applied science to successfully increase the number, persistence, and performance of students; this lets exemplars self-identify.
  - Steve: I see pre-engineering as a way to get kids excited about science. He thinks the commonality is not a magic course sequence.
- Jo/Dick: Ask the college people what makes a successful student; develop a proposal for doing so - at least one admissions person, at least one teacher of intro-level classes – sets like that from OSU, PSU, and UO.
  - There was a college/university panel at CSTA.
  - At OSU, per the AeA Scholarship Program, success predictors are
    - Insight Resume (Jo gave slides to Steve Day)
    - SATs
    - GPA in a challenging choice of courses
- Methods of Dissemination.
  - Get in there with white paper at ODE and influence what teachers do.
  - Teach a class. Jay works with juniors and seniors at Benson. Bring materials and leave them.
  - Make the relevance case to the teachers – this is more than just making a job candidate 6 years out. (MS schoolers doing watershed restoration with SOLV).
  - Can we use the SOLV model to engage kids and the higher ed/ corporate world?
  - Dick thinks he sees more interest by the schools in having the kids have some kind of experience outside of the school. Do we want to play in that space?
  - Who could help us struggle with making engineering real along the lines of SOLV? How do we figure out what's in it for the companies beyond service?

NEXT MEETING: Tuesday April 17 3:30 – 5:00

Adjourn 5:10