

OPAS Initiative Meeting of the Committee Chairs October 5, 2006

Attendees:

- Bruce Schafer, *Steering Committee Chair; Executive Director, ETIC*
- Jo Oshiro, *OPAS Staff Support*
- Susan Boyanovsky, *Alignment and Coordination System-wide, Career Pathways Co-chair; Steering Committee; Community College and Workforce Development (CCWD)*
- Dick Knight, *Alignment and Coordination: Curricular and Co-curricular Chair, Steering Committee, Student Success: Access, Motivation, Retention Committee; Friends of Saturday Academy and various other boards; retired industry executive; educational activist.*
- Eda Davis-Butts, *Diversity Committee Chair; Director of SMILE at OSU*
- Larry Flick, *Instructional Professional Development Committee proxy, Steering Committee, Chair of OSU's Department of Math and Science Education*
- Endi Hartigan, *OUS, for Di Saunders, Marketing Engineering and Applied Science Careers Committee Chair, Steering Committee, ad hoc member of Alignment and Coordination Curricular and Co-curricular and perhaps Diversity, Director of Communications, OUS Chancellor's Office*
- Sean Gallagher, *Standards Courses and Curricula Committee Chair, Principal of Hermiston High School*
- Eileen Boerger, *Student Success: Access, Motivation, Retention Committee Chair, Industry executive, ETIC voting member.*

Committee Updates

Steering (Bruce Schafer):

- Bruce is on several workforce committees that should represent opportunities for OPAS:
 - Oregon Workforce Investment Board
 - Oregon Workforce Policy Cabinet
 - Pathways Steering Committee
- The steering committee submitted a white paper on ramifications of high school graduation requirements changes to the Oregon State Board of Education (OSBE) as part of positioning the OPAS Initiative in the role of trusted advisor. The OSBE decision on raising the high school science graduation requirements will probably come later this year. The decision is likely to be 3 years' science credits minimum and phase in requirement that all three years be lab sciences. Will probably allow one year to be an applied science course. Differences between traditional and applied sciences may resolved by requiring that the courses result in proficiencies consistent with enhanced science standards. "Lab science" will probably include classes with traditional lab benches, CS class using computers, classes involving field work like environmental science, and possibly engineering classes that involve hands-on work. The definition of inquiry may be extended to include engineering problem solving, providing students additional opportunities to see relevance and retain information over a longer period of time.
- The Oregon Board of Education feels that proficiency is a better measure than seat time. For the time being passing courses it what counts, however. Eventually students will be able to test out of courses by demonstrating

proficiency. On top of this approach the Board has identified 14 essential skills areas. The final list of required skills may have 5 to 7 skills listed including analytical skills. There may also be a second list from which students choose a few skills to demonstrate. Problem solving is currently on the second list but may be merged with analytical skills on the first list. This is a healthy debate, but adds an additional level of complexity. It's unclear that it will affect students anytime soon but will eventually become part of what is assessed. Separately the Board is considering raising the minimum GPA for graduation from D- to C. (Susan Boyanovsky, Bruce Schafer)

- **The ETIC CS Taskforce** is analogous to OPAS, although with a less strategic aim and completely focused on computer science. The task force identified five areas of potential action, of which the top two are marketing to High School students; and providing middle- and high-school opportunities to experience CS so they know what the heck it is. Recent activities include the development of speakers' bureau in cooperation with BEC and a student survey to detect formative milestones

Marketing Engineering and Applied Science Careers (MKTC; Endi Hartigan for Di Saunders):

The Marketing Committee is working on prioritizing the lists of ideas. After talking with most of the Committee Chairs individually, the committee concluded that rather than creating separate products, projects, or PR campaigns, we need to support the other committees' needs. Issues briefs represent one format for communicating with opinion leaders. Marketing needs help on finding the best path to teachers and students and welcomes insights from other committees. The committee has limited staff support in addition to Jo.

Alignment and Coordination: System-Wide & Career Pathways (ACSW/CPTH – Susan Boyanovsky and Scott Giltz (in absentia)):

The ACSW/CPTH committees started with the goal of aligning 100-200 level courses, then started asking questions – where are we really at? We concluded we need to do some research. There is commonality out there for certain courses; variances in contact hours exist, but for the most part there is a pattern. In Oregon there is a huge movement around Career Pathways, which involves courses, proficiencies and wraparound services such as counseling. but it's very much in flux. In addition to gathering baseline data, we plan to pilot completely documenting one career pathway. Our pilot is the OIT Manufacturing Engineering Technology degree. There is a marketing piece and labor market piece.

Alignment and Coordination: Curricular and Co-curricular (ACCC – Dick Knight):

The ACCC committee is helping OMSI pull a broad cross-section of informal educators together to look for ways to collaborate, share resources, and leverage best practices.

We're calling it NOISE – Network of Informal STEM Educators. We hope to get 60-70 participants for the kick-off conference on February 5, 2007. As part of the invitation process we are collecting some baseline data via survey. Dick's personal perspective: it is always worth remembering that informals have 10-100 contact hours, while formals have thousands of contact hours. Informals provide some other magic element – the bulk of the education happens in formal education. Informals cannot solve shortcomings in formal education.

SB: Student Leadership Center at Willamette ESD is looking at DECA, FFA, Skills USA, PTSO's Michael Dalton at OSU School of Ed. (Michael.dalton@oregonstate.edu)

Diversity (DIVR):

The Diversity Committee has reviewed existing programs and resources trying to identify best practices for creating diversity-enhancing programs. We are using a wiki as a communication tool. Currently, Eda is drafting a white paper for review by the committee, which we hope to have it available for the workshop.

Many discussions have centered on providing incentives and support for those classroom teachers who have implemented good curricula despite constraints. How can we help them influence other teachers? Position papers will bring this forward to the larger group.

OPAS needs to have concurrent conversations around college access and talk about how to develop a college-going culture, where 'college' means education options beyond high school. Part of that culture creation includes significant influences from parents, and other adults especially if parents are not taking part. Are there opportunities for us to adopt a wider college access agenda? Part of college access is having a realistic idea what it takes to get there, starting in the eighth grade when freshman classes are forecast.

Board of Higher Education's Access and Affordability workgroup is going forward with a fairly bold proposal to make college more affordable. Access is a separate and very different issue than affordability (Endi).

- Georgia has shown that the idea that you can go to college if you make the grades is transformative. They have made college affordable for these students, and the average college admission SAT in GA is 1300. At OSU it is 1050. The ETIC and industry heart is disproportionately affected by the top grads from 4-year and graduate programs (Dick Knight).
- Oregon opportunity grants have been expanded to include part-time students.

Instructional Professional Development (IPD – Larry Flick pro tem):

The Professional Development Committee developed some suggested actions but didn't come to a specific conclusion. Professional development is resource-intensive in both time and money. The committee is very interested in MESA and SMILE because of their ongoing professional development components, particularly of science, math, and technology teachers.

Standards, Courses and Curricula (SCC – Sean Gallagher):

We need to have a three-way partnership involving K12, Higher education, and industry. While we need to see the whole picture, the SCC Committee chose to focus on K12.

There are larger cultural issues in play here:

- **Math avoidance:** There is a huge phobia in US regarding math and science. *Everybody Counts* was published by federal government in 1989 by the Mathematical Sciences Education Board of the National Academies of Science; this report strongly states the need for more, better math for more students. Sean personally remembers how easy his study buddy from Taiwan found college mathematics because in Taiwan, he studied calculus in 8th, 9th grade rather than encountering it for the first time in late high school or college.
- **GPA Emphasis:** Parents gaming are the system and may encourage avoidance of more challenging classes if it may compromise GPA. We need to challenge the higher education system to throw away the high school GPA as a college admission criterion. Let's face it, parents are going to game the system for their kids. It is up to the university to fix the system so gaming it gets the right result.
- **PTE/ CTE is traditionally non-college-prep,** and there is a cultural divide between PTE/CTE students and those in college-prep. We need to help PTE become a gateway to interesting students in more rigorous, traditional courses. We also need PTE/CTE and some of its methodologies to enhance relevance for students. We really feel that the future of engineering is integration into the core standards: reading, writing, and math. Schools nationwide are being forced to make Adequate Yearly Progress (AYP). Science is not yet part of AYP (*Bush has asked Congress to change that in 2006-07 - Jo*). If we can connect to core academics, we have a hope. We need to make math standards include engineering. If engineering is only available via professional technical education most students won't have the opportunity to learn about it (Sean). Crafting the role of PTE is going to be a head scratcher, but there are resources: recently Perkins funding was renewed, with more accountability requirements. There are also problems with curricula and textbooks (Bruce).

Student Success: Access, Motivation, Retention (SAMR – Eileen Boerger):

he SAMR Committee likes short-term payback and has chosen to focus on teachers, counselors and parents serving students in grades 6-10. We'd like to build on something that exists, and find a way to get medium to small size companies involved in a bigger way? The committee has had conversations with MESA teachers and the BEC and has

released three surveys onto the Internet – “Sparking an Interest in Engineering” for high school and college students, and professionals. We are still working on identifying some really definitive actions.

(Larry Flick passed on some very interesting references about when students form an idea of what they want to do; what leads able students into or out of STEM fields –

- *Tobias, S. (1990) **They’re Not Dumb, They’re Different: Stalking the Second Tier.** Tucson, AZ: Research Corporation. Some of the data is quite dated.*
- *Logsdon, J.M., “On the Origins of Scientists and Engineers” Washington, DC: George Washington University Space Policy Institute.*
- *Lipson, A. “The Concentration Choice Study (1978-1983)” A secondary analysis of a data set available through the archive of the Henry A. Murray Research Center of Radcliffe College.)*

Driving Ideas

- Capture the knowledge and perspective we have derived from our many conversations with each other.
- Standards and graduation requirements set a floor on expectations; upgrading them solves a real problem for K12 education. While this is good, to remedy OPAS’ dilemma, we need to raise the ceiling and see more students are up there in the rafters.
- Public perception is that engineering and computer science jobs are dwindling and being outsourced. Some data on computer science careers is on the GETREAL website. Dick Knight and Eileen Boerger, our industry experts say that the “important” jobs are not being outsourced. Problem solving and creative thinking distinguish the important jobs from routine jobs.
 - We need the foundation of strong math and science in the world. The U.S recovered from previous high tech recessions with both routine and important jobs, but soon neither the important nor the routine jobs won’t have to come back here to the U.S. We are going to lose the leading position from the top, not from the bottom. We ought to be afraid, very afraid. Vietnam’s educational system has science and math for 12 years, and they are probably behind China, India, and Singapore.
 - Recent SAT data on students’ intended college majors show Oregon like the rest of the country for students choosing engineering (around 9%, pretty flat over time) but not for students choosing computer science; there Oregon is slightly worse than the rest of the country.
 - Appeal for computer scientists – industry created the buzz, the disasters, the layoff, the turmoil, only they can fix it. We should challenge the ETIC companies to take on the PR as a way of addressing these issues. This time the peak doesn’t have to come back to the US. We also need to be working harder to keep the best brains from other countries in the U.S. after they graduate from U.S. universities.
- Don’t limit our vision to engineers – include apprentice, construction, technology programs to emphasize applied thinking.

- Get some commitment into thinking about how science classes are presented. What the national science standards say is not how most science is done. The old term “scientific method” is not particularly representative of what scientists do in the field. Currently, science classes are about scientists – Newton, Darwin, Mendeleev. In the end, kids don’t go out and experience that – they experience the built environment. We need a shift in thinking that results in a long-term commitment to how we do science and math teaching. We cannot teach an expansion of the existing approach – we need to do things differently. Controlled experiments are not representative of science, but are only one aspect of it. Look at Washington’s science standard for a better description of inquiry. We must address this at the Workshop (Larry Flick, Dick Knight).
- Use PTE/CTE to meet core requirements, provide relevance and career exposure, and as a gateway to further work in more traditional college-prep coursework.
- Make assessment more useful to students in their learning, teachers in their teaching and buildings/districts in their accountability ratings. Community colleges do this with their placement tests (reading, writing, math), using testing to answer “What are you ready to do next?” rather than “What did you learn in the last 4 years?” We need to transform punitive accountability into advising for the benefit of the student, preferably before they leave high school. 40% of university students are taking remedial work, which is a real waste of public, private, and personal resources (Dick Knight, Susan Boyanovsky)
- Math, science, and engineering have significant overlaps, but they are not interchangeable. Scientists are talked about differently than engineers.

Workshop Planning

- Logistics
 - November 17th at OMSI; 9 – 5(4:30?); continental, coffee break, lunch (networking time), cookies
 - No overall facilitator
 - Change the look and feel so it is different than OPAS Summit 2005
 - Conference/classroom setup in front
 - Working tables/Us in back next to walls
- Advance Materials
 - Summary of what is going on in Oregon – SHORT
 - Update key programs profiles on the website
 - (*previously mentioned – Environmental Scan – of other states?*)
- Goal
 - prioritize a few strategies for OPAS to focus on; restructure around those
 - Make the committees more productive
 - Move the work of OPAS ahead
 - come up with a concrete plan for finding additional resources to implement those strategies
- Update all members on OPAS activities, insights
 - Do not lose the work that has been done so far

- Do not lose momentum waiting for the Workshop; continue ongoing activities
- Facilitated table discussions for each of OPAS Domains of Action:
 - Policy – tentatively, Bruce Schafer
 - Classroom practice – Dick Knight
 - Direct Delivery – Eileen Boerger
- For each domain, discuss
 - The environment: constraints, issues, opportunities, timelines, resources, partners
 - The OPAS potential strategies that have risen to the top, as gleaned in committee meetings and other discussions
 - Filter out those strategies for which there is not a demonstrated need or are being well-covered by other groups or long-term vs. short-term (*I believe Eileen would vote only for short-term and filter out long-term, but the committee as a whole might want to balance these - Jo.*)
- Rotate all members through each table (facilitators excepted), but not as a group
 - (Jo) advance schedule
- At the end of the rotations, each facilitator will present a précis of the working sessions to the entire group
- Give each member votes – abstention of some votes allowed (*do we need to play with these numbers?*)
 - 3 red dots – vote for where your passion is
 - 3 green dots – vote for what you think is most important
 - 3 blue dots – vote for biggest long-term payoff
 - 3 yellow dots – vote for biggest short-term payoff
- Tally votes
- Regroup around Dick, Eileen, Bruce (unless Classroom Practice and Direct Delivery get collapsed) or around the top strategies ...
 - Signup sheets so Jo can set up committee support structures later

After this point, Jo is making it up:

- As a group, the first exercise is “How could we get more funds to implement this strategy?”
 - After a set time, send a spokesperson to a funding working group headed by Bruce
- Second group exercise is
 - best tactics to implement this strategy
 - who should be recruited; who will do the recruiting
 - next steps