
Meeting Notes

STEM Education Innovation Alliance

December 16, 2015

Seattle Metropolitan Chamber of Commerce (Seattle, Washington)

Microsoft Event Center Room A

Welcome

Maud Daudon, *President and CEO* of the Seattle Metropolitan Chamber of Commerce, welcomed the STEM Alliance and expressed her support for a productive meeting. The group acknowledged their gratefulness to the Seattle Chamber and Maud for hosting the meeting. They commented on the lovely meeting facilities and views.

Discussion of STEM Education Report Card

Discussion led by: **Mary Kay Dugan**, *Managing Director–Education*, IMPAQ International

The first topic on the agenda was a discussion of the final draft of the STEM Education Report Card and a request to approve the text as the final version to be submitted to the Washington State Legislature. The STEM Education Report Card is due to the legislature by January 10, 2016.

The recommendations and review subcommittee – which included Violet Boyer, Jane Broom Davidson, Jeff Charbonneau, Caroline King, Marcie Maxwell, Gil Mendoza, Daryl Monear, Maddy Thompson, and Sam Whiting – worked over the last three months to articulate and extend the ideas and discussions generated at the September 17, 2015, meeting of the STEM Alliance. From a broader list of proposed activity that could advance STEM education and career training in Washington, the subcommittee narrowed it down to four key recommendations that would not overload the legislature with high-dollar requests in a non-budget year and would have the potential for substantial impact:

1. Fund College in the High School courses for more low income students in STEM-related courses.

2. Increase MESA funding and expand the program from 6 Community Colleges to 12 Community and Technical Colleges this session, then to 34 CTC's in the following biennium.
3. Invest in educators' endorsements in computer science teaching by providing professional development opportunities so that they can nurture student interest in computational thinking in preparation for post-secondary programs and good jobs in this high demand field. Our specific recommendation is to consider accelerating the path to provide computer science opportunities for all students in Washington by investing more in the computer science endorsement scholarships for educators legislated last year. Our goal is for every student to experience computer science learning as a part of his/her education. As well, we recommend that EVERY classroom in the state participate in the Hour of Code during Computer Science Education week in December.
4. Endorse the Washington Student Achievement Council's (WSAC) request to sustain the STEM Education Innovation Alliance and the STEM Talent Supply and Demand Data Dashboard.

Comments on the Draft Report Card and Recommendations

The Report Card needs to be succinct, readable and approachable while giving legislators enough data, background and information to be helpful and useable.

A question was raised about one of the metrics in the Report Card. What schools are administering the Washington Kindergarten Inventory of Developing Skills (WaKIDS) assessment and is this an appropriate metric to measure growth over time for the math standard of early learning? A member pointed out that kindergarteners at his school do not take this assessment and that WaKIDS is primarily given as a mandate for schools who receive Title I (part of the Elementary and Secondary Education Act) funds. As a result, only those schools are being documented in this data. Do those results present a representative group of kindergarteners in the State of Washington?

In response it was pointed out that WaKIDS is the state assessment for all full day kindergarteners and will be required by every full day classroom starting in school year 2017-2018. Many schools are using it now in addition to the schools receiving Title I funds. The WaKIDS assessment started being used only with the lower income schools, but, by school year 2017-2018, everyone will be taking it.

[OSPI Note: WAKIDS is a required assessment for all buildings – not just Title I. It is required for administration in the fall, by the teacher of the students. It is not required beyond that; however, it is available for and may be administered any time during the year.]

The power of the WaKIDS assessment stems from it being administered by the teacher of the student. It is an observational assessment over time, not a one-time assessment, conducted by classroom teachers, and they use the results to inform their practice. The assessment is repeated at the end of each year. This is the only assessment done in this way.

A question was raised about whether there is a general overreliance on math metrics as a driver. A major effect of this overreliance is that it may be driving us away from the experiential learning that we all know is important. Emphasizing this metric in kindergarten may pose a problem because this is a time when students should be getting their hands dirty. Only measuring math metrics may not reflect the total person.

A suggestion was made about using the existing structures in our K-12 education system that don't require additional funding but have the potential for positive impact. What about leveraging mechanisms in place for school improvement plans? Currently, OSPI requires each district to report its progress on school improvement plans. Could we require a STEM component in the school improvement plans? Is this reasonable?

[OSPI Note: All buildings are required to complete School Improvement Plans under state law. These plans should focus on needed areas for improvement based on data from multiple measures.]

Under the current system, schools ranking at the bottom 5% and 10% on state assessments have to address where their deficiencies are. If that deficiency is in mathematics, it would be a natural transition to extend that to STEM. Since all schools have to do a school improvement plan, it would not be unreasonable to include STEM in their planning. Many districts would be interested in including this as part of a school improvement plan.

[OSPI Note: OSPI identifies its Priority Schools as the bottom 5% based on all student data over 3 years in reading and math, and high schools with graduation rates less than 60%. OSPI identifies its Focus Schools based as the bottom 10% using the same criteria as above, based on subgroup performance. STEM offerings could be used as a strategy to address the identified need, as appropriate.]

Another issue is the Accountability Index used to determine currently struggling schools. It includes only a small component measuring proficiency of science which does not significantly impact a school's total score on the index. Mathematics is a big part of the current index that determines individual school success as well as reading. Improvements in mathematics and/or reading is where schools get the biggest change in the index scores; science has less impact. To correct this, we could work with OSPI and the State Board of Education as they work to revise the Accountability Index especially with the new mandates of the Every Student Succeeds Act (ESSA).

It was agreed that these ideas are well-worth pursuing but that further discussion will be needed. Not enough time is available to include these ideas in the STEM Education Report Card. We will revisit this discussion in future meetings.

A question was asked about data supporting framework indicator #4. As it stands, the measure only focuses on computer science. Could it be expanded to cover dual credit courses, like Advanced Placement (AP) Biology, Physics, and Chemistry? To expand upon this, we should work toward adding other metrics.

It was agreed that expanding these metrics should be a priority going forward, but this may have to wait. As it stands currently, the metrics are still being developed. We don't have the AP scores from The College Board yet. It was agreed that a note will be added to the STEM Education Report Card indicating that more metrics will follow.

The Alliance members present and on the phone agreed that the STEM Education Report Card content is completed and acceptable as is.

Strategies for Engaging with Legislators during the Upcoming Legislative Session

The Governor plans to release his budget at 11:00 AM, December 17, 2015. Overall, the Governor's Office has been very positive about the \$155,000 budget request and support for the STEM Alliance work going forward.

With respect to advocacy, a meeting with the Washington State Senate and House of Representatives Education committees will need to be scheduled very soon because it is a short session. It would be helpful to see who has a strong interest in the report. In addition, we should coordinate through John Aultman, as he joins the Office of the Governor, to help promote and support these priorities.

It would be best if a panel of Alliance members from the recommendations subcommittee could give a presentation of the report to the legislators. Jeff Charbonneau volunteered that he is ready and willing to present in Olympia.

[Note: Governor Jay Inslee's 2016 Proposed Supplemental Budget included \$450,000 for the MESA community college program, \$250,000 for the MESA pre-college program, and \$155,000 for the Governor's STEM Alliance. Published December 17, 2015.]

The New NGA Work-Based Learning Grant Project and its Alignment with STEM Alliance Objectives

Discussion led by: **Eleni Papadakis**, *Executive Director*, Washington State Workforce Training and Education Board

On December 1, 2015, it was announced that the Governor's Office was awarded a new \$100,000 National Governors Association Grant: *2016 Policy Academy on Scaling Work-Based Learning*. This Policy Academy will be co-chaired by Eleni Papadakis and John Aultman from the Governor's Office. The focus of this grant project will align well with the work and goals of the STEM Alliance and our current NGA grant. The activity of this grant will be centered on developing strategies to scale high-quality, work-based learning opportunities for young adults, especially disadvantaged or Opportunity Youth. The idea is to connect 16- to 29-year-olds with middle-skills career opportunities in STEM industries.

Eleni Papadakis provided a broad overview of her vision for the grant and how it will complement the work of the STEM Alliance. For this project, the Workforce Board and its Core Team partners will create a policy framework to increase work-based learning for youth ages

16-29, particularly in STEM fields. Increasing access to work-based learning is a longstanding initiative of the Workforce Board and its partners. The Policy Academy will bring together stakeholders and will work to connect young adults to middle-skill opportunities in STEM fields, including advanced manufacturing, healthcare, IT, and energy. The goal is to make work-based learning available to all students—although initially, the group will focus on ensuring that disadvantaged young people have access, as they are the least likely to get early work experience opportunities.

The work of the Workforce Board is laser-focused on employment and earnings outcomes for system customers, including our state’s businesses. Aligning the state’s education and career training system—the talent development pipeline—with workforce demand has been a primary strategy of the Board’s since its inception. The Workforce Board tracks and analyzes trends in program outcomes, employment participation rates, skills gap analyzes and other data. For nine years, the Workforce Board has been monitoring what is going on with young people in the state. Disturbingly, the labor force participation rate among young people 16-25 has been on a downward spiral for many years—even prior to the Great Recession. The statistics are worse for those without a high school diploma, students with disabilities, and students of color—but all education levels have been affected. One thing it has noticed is that even if students go through a postsecondary program, they do not necessarily become connected to the labor force in the way they want and hope to.

The Workforce Board has been looking over the years at a model that makes a difference in the success trajectory for young people - a model that includes experiential learning. Experiential learning is a huge bonus and, if it is work and career contextualized, it is even better. It makes a huge difference for the youth caught in the opportunity and achievement gap, those who are least likely to get attached to the labor market. If they start learning about the world of work and the role they can play early on (even in pre-school), they can start developing a success vision for themselves. That aids perseverance, and they are much more likely to make it through their educational programs.

The Workforce Board has been advocating for new investments in work-based learning (or “work integrated learning”) for many years. They have managed to get some pilot program money for boutique programs around the state. This has resulted in some growth in career and technical education (CTE) programs at both secondary and postsecondary levels. But it is not sustainable, and it is not growing.

When the NGA grant came along, the Workforce Board was primed and ready. They had a compelling story to tell about what they’ve been able to do in Washington and where they haven’t been successful. This Work-Based Learning Policy Academy is an opportunity to bring a lot of stakeholders together to create a framework in the state that will make work-based learning available to every student who wants and needs it. That is the focus.

The overall goal is to design a fundable and sustainable infrastructure to expand work-based learning in the state. A key feature will be to create a performance accountability system for work-based learning. People often say they are doing work-based learning, but it doesn’t have

many of the key features that make it valuable. The plan is to create a set of metrics and standards to measure this.

The State Core Team Members for this project include:

- Association of Washington Business
- Washington State Labor Council
- Department of Commerce
- Department of Social and Health Services
- Employment Security Department
- Governor's Office
- Office of Superintendent of Public Instruction
- State Board for Community and Technical Colleges
- Washington Building & Construction Trades Council
- Washington Student Achievement Council
- Workforce Training and Education Coordinating Board

The Washington State Labor Council and the Association of Washington Business (AWB) are linking arms with the Workforce Board on this project. They have been big proponents over the past years on this.

John Aultman has had a long history building highly effective industry-education partnerships as well.

It was suggested that the AWB is not the only business organization in Washington State and does not speak for all businesses. AWB has its own agenda that influences the policies and direction it follows. Eleni responded that the Policy Academy will form a subcommittee (work group) made up of the state's industry associations that will work them to include biomedical, health care labor, manufacturing labor, and recruiting professional organizations from mid-level STEM fields (the focus of this grant). They will also be working with the chamber of commerce association, economic development organizations, and rotary clubs. The Washington State Department of Commerce has committed a linkage to their industry sector leads as well.

Several members expressed enthusiastic support for this work, stressing that it is important for students. Public education is right now at super saturation. It is hard to find teachers and substitutes because the schools keeps piling on requirements. If you want to do something different that will have immediate impact on schools, put the same amount of thought and conversation into strategizing about how to engage businesses as to how you are going to engage the teachers. Scheduling a meeting with corporate executives and business managers during the school day requires the classroom teacher to have a substitute. K-12 classroom teachers will need to be actively involved in this. If you get buy in from them and you get their

perspective, then you will get something that works and will be more than just another task force or report. It will actually move the needle. In setting up an effective framework for this, both educators and representatives of industry need to be integrally involved - the classroom teachers' expertise in instruction needs to be mirrored by the expertise of industry.

As these experiences are expanded into the public schools, it will be important that people understand that ownership needs to be shared and broadened. Currently, work-based learning is understood to be contained within the smaller umbrella of CTE. The approach needs to make certain that CTE doesn't claim ownership of this and that the other educators do not believe that work-based learning belongs in CTE - and then they don't want to participate. It's about bringing this broader context to all learning, empowering all teachers to convey the connection of what they teach with life outside of academics. The work-based learning system ideally should be built so that it exists in a symbiotic relationship with P-20 education, so kids see that connection not only through their academic learning but through the outcomes.

A number of companies, such as Boeing and SkillUp Washington, have been engaged in work-based learning efforts. The Workforce Board has been working with a few companies so far along with SkillUp Washington and will contact them about this project.

The Seattle Metropolitan Chamber of Commerce and other public partners are launching an initiative to better connect the jobs of today with workers. Fifteen different companies are working on this. The most effective approach would be to assess quickly where the most extraordinary efforts are, amp those up, and determine what other efforts are underway, to develop a more coordinated strategy. The Seattle Chamber will likely have good data on this by March 2016 and have a good picture of the landscape, showing who is doing what, and will be happy to share that information.

The Workforce Board is trying to create a policy framework for the project and welcomes any help the STEM Alliance members can provide in conceptualizing what partnerships with industry should look like and developing strategies for convincing industries to come to the table.

Summary of Site Visits with National Governors Association (NGA) Work-Based Learning Policy Academy Team

Discussion led by: **Daryl Monear**, *Associate Director of Academic Affairs and Policy*, Washington Student Achievement Council

To help them in their efforts as members of the leadership team who will be coordinating the NGA's Work-Based Learning Policy Academy, NGA staff leads Brent Parton and Natalie Truong were interested in visiting some leading institutions in the state with innovative programs in work-integrated learning. Since they were planning to attend the STEM Summit on December 1 and would be in the area, Daryl Monear arranged for site visits the following day at Raisbeck Aviation High School and the Georgetown Campus of South Seattle College. Nova Gattman and

Eric Wolf, staff from the Workforce Board, joined the tour as well. So this was a great opportunity to connect with key policy specialists at NGA and also begin to see the points of convergence between the work of the STEM Alliance and the two NGA grant projects.

At Raisbeck, the tour began with the mentor breakfast, at which students connect with potential mentors in industries and occupations that they are interested in. In addition to being shown the various classrooms and labs, the group met with the director of the internship program, in which more than 50 percent of the students participate.

At the Georgetown Campus, we toured the Apprenticeship Center, which trains more than 4,000 apprentices annually in 20 different trades, including manufacturing, mechanics, construction and aerospace. Curricula are developed in collaboration with business, labor, and industry partners, with each program offering certificate options and pathways to associate degrees. The Center offers a wide range of pre-apprenticeships, in which students can earn college credit.

These were both excellent tours, which gave us the opportunity to strengthen our rapport with folks at the NGA Center for Best Practices and begin to explore the substantial overlap between our current STEM grant program and the new work-based learning grant and ways that we can leverage both projects to advance the work of the Alliance and STEM education in Washington.

Comments on the Possibility of Expanding these Educational Models to Other Institutions in the State

Career-based education programs at the community colleges are best created by the will of a group of people, so you usually don't have to wait for any one person to take the lead on this activity. South Seattle College (Georgetown campus) is the second largest community college in state in terms of career-based education. Every community college has an apprenticeship program, but the drive that makes these things take shape tends to happen only once and is seldom repeated.

Several other public schools in the state have a STEM and career-based learning focus: in addition to Raisbeck Aviation High School (Highline School District), there is Science and Math Institute (SAMI) (Tacoma Public Schools) located in Point Defiance Park, Rosalind Franklin STEM Elementary School (Pasco School District), Delta High School (Pasco School District), Project Lead the Way (Toppenish School District), and STEM Pals (Olympia School District Education Foundation). We have many progressive STEM programs and need to expand our thinking past the successes of Raisbeck Aviation High School. There are individual teachers that are doing very innovative things, using many learning styles in STEM education to see what works best in each community.

Industry-Education Partnerships Task Force

Discussion led by: **Mary Kay Dugan**, *Managing Director-Education*, IMPAQ International

With respect to the Industry-Education Partnerships Task Force, the goal for this meeting is to begin thinking about what the membership of the work group might be like and what the goals should be over the next year.

Some potential outcomes for this group might be to define the features of effective partnerships, create an asset map of existing partnerships in the state, and explore ways in which those partnerships could be leveraged, improved, and expanded for maximum impact. NGA Policy Analyst Brent Parton's handout on high quality partnerships, distributed at the December 1, 2015, meeting outlined some of the key characteristics of effective and sustainable partnerships.

The Industry-Education Partnership Task Force should rely as much as possible on information that already exists. Industry associations are good resources but more information on hiring can be gathered from actual companies.

The board at Washington STEM has a good mix of educators and employers in its composition. They have seven regional networks around the state and three more in the planning mode. A cornerstone of their work is connecting educators and employers in helping students be aware of the opportunities. A subset of these networks formed to understand barriers to growth and what approaches work best. Washington STEM would be happy to share this information.

The process of engaging with employers could be streamlined. We need to understand what features are present in high-quality partnerships. We should research best practices on this issue, develop an asset map of current partnerships, and then bring together industries statewide. We could put together a one day summit that shares with employers what high quality partnerships look like and enlist their support in moving forward. One of the key features of successful partnerships identified in Brent Parton's handout was that they are led by business. With this precept in mind, it may be easier to get business to an event that is organized by business rather than state government.

This activity could proceed in two phases. In Phase One, the task force would create an asset map and document and benchmark current thoughts about partnerships. Phase Two would be more action-oriented, bringing together educators and industry with a call to action and making an "ask."

A potential resource we could leverage in this work is the Employer-Educator Forum that will be held in Spokane in April or May 2016. Sponsored by the Washington Consortium for the Liberal Arts, the forum is entitled, "Higher Education as Collaboration: Partnering for Work, Leadership, and Life." This forum has been designed as a way for leaders from higher education institutions to engage in purposeful dialogue with local and regional employer representatives and policy

leaders about creating more intentional partnerships that give college students hands-on learning experiences that will be useful for their careers.

It would be optimal for both NGA projects to collaborate on the industry education partnerships work. It is planned to be the next focus of the NGA-STEM project, and will be a key component of the new NGA Work-Based Learning grant project. In fact, the first task on the Workforce Board's project agenda is to create an asset map of partnerships. As another key part of this project, the governor will host a work-based learning summit to advocate for this new infrastructure - to build a network of champions and wide range of stakeholders across the state. In this regard, the work of the two grant projects will dovetail perfectly, with great potential for a productive collaborative synergy.

Maud Daudon and other Alliance members asked for a recap at our next meeting regarding what's already underway in the state regarding industry education partnerships. From that, the Alliance could thoughtfully discuss and decide if there is a need for another task force or if Alliance members could be strategically plugged into existing efforts.

Alliance Activities Feedback and Plans for Next Year

A recap of what the STEM Alliance accomplished in 2015 was presented.

2015 Meetings of the STEM Education Innovation Alliance:

March 6 (Olympia) - Discussed priorities with the Governor and objectives for the Alliance, including formation of Metrics and Industry/Education Partnership workgroups.

May 6 (Seattle) – Toured Institute for Systems Biology and discussed the measures for the Dashboard and the STEM Education Report Card.

September 17 (Olympia) - Met with Governor Inslee, discussed STEM Education Report Card, brainstorming on recommendations to the legislature and formed the STEM Education Report Card recommendations subcommittee.

December 1 (Redmond) – Washington STEM Summit - Matt Steuerwalt on Governor's budget priorities, Brent Parton on the NGA grant and Industry/Education Partnerships, and a demonstration of Washington's Talent Supply and Demand Dashboard.

December 16 (Seattle) - Finalized STEM Education Report Card, began formation of Industry/Education Partnerships task force and planned for next year's activities.

Suggestions for What the Alliance Should Focus on Next Year

The Alliance should align with the work of the Workforce Board and its newly funded grant, work to expand the STEM Education Report Card in 2016, and continue the practice of holding meetings in varied locations combined with industry site visits when possible.

We need to have a more clear understanding of the real issues here. We don't currently have a combined and collective vision of the problem, which needs to be considered more broadly.

We need to take action with regard to the additional funding associated with the McCleary court decision: the STEM Alliance could share what STEM related stuff should be put into this funding and provide a list of ideas on how to advance education for kids in STEM.

The STEM Alliance should consider things happening in the public schools that are related to STEM, develop strategies for supporting these things, and make sure the public and business communities are aware of them.

The voice of those with firsthand experience in the schools was not as prominent at the Washington STEM Summit as it could have been. Glenn Malone offered to host a STEM Alliance meeting next year in Puyallup School District, giving the Alliance members a firsthand experience of what is happening in STEM in their schools.

We should also visit schools where there is a lack of resources and advanced facilities or a lack of innovation happening because of limiting circumstances. It is important to see lighthouse schools. But it is also important to see what the barriers are for those schools that are seen as not performing in STEM. We need to understand the broader issue. Greater outreach to classroom teachers, university professors and administrators is needed, so they can understand exactly what they need from us. A major issue for the state is that we are going to have a shortage of STEM teachers. What can we do to help OSPI? It would be very helpful to hold a meeting specifically designed towards figuring out what the big questions are, what the legislature needs help answering, and what our universities and K-12 partners need help answering. Rather than us coming up with questions, let's get them to ask the questions. It would help us in our efforts to get a clear picture of what is and what needs to be done in STEM education.

Jeff Charbonneau, Brian Teppner, Susan Enfield and Nancy Truitt Pierce will put together a briefing for the STEM Alliance on the realities in public education these days so all can be more informed about actions and policies to recommend. The briefing would be inclusive of all students and address what it looks like to be a STEM school. It will not be about creating a STEM school but rather fostering problem solving abilities and closing the achievement gap.

We should plan a presentation to the Legislature and schedule the next meeting around that. It is challenging for most legislators to engage in things during session that are not session related. In general, if we plan to make recommendations to the legislature, it needs to be done earlier (perhaps as early as September) to be most effective. In retrospect, it may have been better to have held the discussion we had today during the Washington STEM Summit.

We should survey the full Alliance membership to gather input about where and when they would like to meet, particularly gathering information from those that have not been showing up. We have heavy attendance from those in the education community but also need our members representing businesses.

The first meeting next year should be held at the end of January or in early February in Olympia, when we present to the Legislature.

We should plan a meeting in June as well, focused on industry-education partnerships.

Next Steps

A group of Alliance members would like to present the Alliance's recommendations to the House of Representatives Higher Education Committee. Eleni Papadakis will speak on the 2016 Policy Academy on Scaling Work-Based Learning project funded by NGA.

Meeting Attendance

Members and staff attending remotely via webinar are noted as (webinar).

Alliance Members and Alternates:

John Aultman – Office of the Governor (webinar)

Brian Bonlender – Washington State Department of Commerce

Violet Boyer - Independent Colleges of Washington

Marty Brown – State Board for Community and Technical Colleges (webinar)

Jeff Charbonneau – Zillah High School (webinar)

Maud Daudon – Seattle Metropolitan Chamber of Commerce

Caroline King – Washington STEM

Glenn Malone – Puyallup School District - Assessment, Accountability & Student Success (webinar)

Marcie Maxwell – Former State Representative

Gil Mendoza – Office of Superintendent of Public Instruction

Eleni Papadakis – Workforce Training and Education Coordinating Board

Dana Riley Black – Institute for Systems Biology - Logan Center for Education

Gene Sharratt – Washington Student Achievement Council

Brian Teppner – Bellevue School District

Nancy Truitt Pierce – Monroe Public Schools

Sam Whiting – Thrive Washington

Operations and Management Staff:

Mary Kay Dugan – IMPAQ International

Ellen Matheny – Washington Student Achievement Council

Daryl Monear – Washington Student Achievement Council

Jim Schmidt – Washington State Office of Financial Management, Educational Research Data Center (webinar)

Randy Spaulding – Washington Student Achievement Council

Meeting notes compiled by Washington Student Achievement Council staff members Ellen Matheny and Daryl Monear.