We thank you for your hard work, dedication, and commitment to your profession and students. The Program Review document and discussion was thorough, thoughtful, and well done. This response contains 4 sections: 1) Commendations, 2) Suggestions/observations, 3) Response to recommendations/areas of SAC needs and 4) Closing comments.

1. **Commendations**

*The Program Review Document was thorough, thoughtful, well organized and highly readable.*

*The Program Review discussion was wide-ranging and extremely thoughtful about ways the college could improve student success in Mathematics, including curriculum revision, faculty professional development, and improved support resources.*

*The Math SAC and departments across the college have continued to develop and pilot alternative pathways for students, including AMP (at Cascade and Southeast), ALC (at Sylvania and Southeast), contextualized CTE Math (Math 80/85), expansion of Explorations in Mathematics (Math 105), and changing the pre-requisite to college-level Statistics (Math 243).*

* Members of the Math SAC have continued their development of WebWork, an open source platform for Math instruction, learning, and practice, and experimented with ways to get it more fully integrated with both classroom and online instruction.*

* The Math SAC has been a leader in developing accessible tools for online instruction, learning, practice, and support.*

* The Math SAC has made efforts to integrate Social Justice themes, examples, and issues into its curriculum at various levels of instruction.*

* The Math SAC has been actively engaged in course and sequence assessment and in incorporating the results of assessment into curriculum improvements and professional development.*

* The Math SAC successfully integrated DE Math (Math 20) into the larger Math SAC and formed a committee to assess the alignment of all the pre-college curriculum.*

* The Math SAC and campus departments have made efforts to collaborate with student and academic support services to improve student success in Math, most notably in its close work with the Academic Intervention Specialist at Cascade.*

*The Math SAC’s recommendations on diversity in hiring, addressing cultural competency issues, and improving outcomes for under-represented students is welcome and admirable.*
2. **Suggestions and Observations**

A major curriculum overhaul, such as contemplated in the NSF draft grant proposal and presented and discussed in the Program Review, can be a very time-consuming and expensive undertaking. The DOIs suggest the SAC continue to explore existing curricula under development, such as Statway, Quantway, and the work of the Dana Center, to assess whether there are appropriate models that could be readily adapted to PCC rather than developed from scratch and requiring such a large investment of resources. The Math SACs Pre-College Committee is an appropriate place to continue this work of research, revisions, and recommendations.

WebWork, a highly valuable and original teaching tool, will also require thousands of hours of development work in order to fully realize the potential its originators envision for it. This kind of work is more typical of textbook publishers, website developers, and/or research institutions, and not typically funded by community colleges whose primary mission is instruction. While we applaud the hard work and creativity of the WebWork team, we question whether this is an appropriate investment of PCC resources.

The Math SAC’s strong interest in collaborating with student and enrollment services to improve orientation, placement, and support for success in Math should continue, with local efforts such as pre-testing workshops, AMP, and ALC classes expanded to all campuses and promoted more effectively to all students.

3. **Recommendations**

With 33 recommendations, it is difficult for the DOIs to assess what are the most pressing needs and highest priorities of the Math SAC. Therefore, we are not going to respond to all 33 recommendations individually; rather, we will respond to SAC recommendations by theme or category. If the Math SAC wants more specific responses to specific recommendations, please let us know. We are happy to continue our dialogue in a follow up meeting with the Math SAC and/or Math Leaders group. In fact, a follow-up meeting--including student services, testing, advising, tutoring, distance learning, and others--where we come to consensus around the priorities and plans for continuing the work to improve outcomes in Mathematics is clearly needed.
In the view of the DOIs, many of the SAC recommendations contained in the Program Review are matters of focus, attention, and leadership rather than major investments of new resources. These include:

- **focus on curriculum alignment between levels and sections:**
The work of the LAS and Action Subcommittee on aligning curriculum by level is admirable and necessary. The work of the Pre-College Committee considering redesign of the pre-college pathways is just getting underway. In any case, increased clarity about the content and outcomes for each course level is crucial in sequenced courses and provide a foundation for ongoing professional development for full-time faculty, part-time faculty, and dual credit instructors in our high school partnerships. The DOIs strongly support these ongoing efforts and encourage the Math Leaders in the SAC and on each campus to continue this work.

- **professional development aimed at creating more active learning environments:**
Even small, incremental efforts in this direction have the potential to yield big results. Real world examples and problems, group work, think-pair-share, exploration of POGIL techniques used in the sciences--all these should be explored, embraced, and woven into the culture of Math instruction through faculty hiring, assessment, and professional development. Again, the DOIs strongly support these ongoing efforts and encourage the Math Leaders in the SAC and on each campus to continue this work.

- **training on diversity and cultural competence:**
The Math SAC’s concern with diversity, cultural competence, and closing the achievement gap is admirable and timely. Again, these are matters of hiring, professional development, leadership, and focus. The DOIs support this work and encourage the Math SAC and Leaders to expand these efforts.

- **improved oversight of online courses:**
The Math SAC’s concern with the quality of online offerings and the readiness of pre-college students to learn online is shared by the DOIs and the Distance Learning Advisory Committee. Pilot projects are underway to assess student readiness and prepare them for online learning. There are specific difficulties to learning Mathematics online that may need to be explored as these pilots expand and move forward. Whether these assessments and preparation are best initiated through a pop-up window or
some other screening mechanism is to be determined. The DOIs support
the involvement of math faculty, representing the Math SAC, being
engaged and consulted in these discussions and pilots going forward.

- **establishing formal mentoring relationships with new part-time
  faculty:**
There are myriad efforts underway across the district to address the issue
of supporting and mentoring part-time faculty, including structured
orientations, part-time inservices, TLC sessions, handbooks and websites,
and even structured mentoring relationships initiated in various
departments. The DOIs support these efforts and will continue to work
with Professional and Organizational Development, the TLCs, and
specific departments to further these efforts. We strongly encourage the
Math SAC and Math Leaders to further develop these efforts to engage
and support part-time faculty.

- **strengthening liaison relationships with advising and other student
  services:**
Efforts are underway in the Prepare Task Force to assess the orientation,
placement testing, and advising processes in a holistic way. Consultants
are coming to campus to meet with advisors from campuses and programs
across the district to assess advising processes. Communication with
students about the testing process and pretesting preparation are key
components of these conversations. In the meantime, online test
preparation is available to students and pretesting review workshops and
AMP classes continue to be offered in various venues around the district.
The DOIs strongly support improved communication with students about
the importance of placement testing and improved availability of online
and on-campus review and preparation resources. Continued dialogue
between faculty, instructional leaders, and student services are essential in
making these process improvements meaningful and widely understood.

The DOIs encourage Math leaders on each campus--both the FDCs and Division
Deans--to pursue these initiatives and make improved outcomes in the Math
sequence a major focus of their work in the coming years.
Recommendations requiring funding

1. Major Curriculum Revisions:

As noted above, a major curriculum overhaul, such as contemplated in the NSF draft grant proposal and presented and discussed in the Program Review, can be a very time-consuming and expensive undertaking. The DOIs suggest the SAC continue to explore existing curricula under development, such as Statway, Quantway, and the work of the Dana Center, to assess whether there are appropriate models that could be readily adapted to PCC rather than developed from scratch and requiring such a large investment of resources. The Math SACs Pre-College Committee is an appropriate place to continue this work of research, revisions, and recommendations.

2. WebWork Development:

As noted above, this kind of work is more typical of textbook publishers, website developers, and/or research institutions, and not typically funded by community colleges whose primary mission is instruction. While we applaud the hard work and creativity of the WebWork team, we question whether this is an appropriate investment of PCC resources.

3. Computer Classrooms and Smartboards:

New computer classrooms are coming online or have come online at Southeast and Cascade. Classroom equipment and scheduling are determined at the campus-level; nevertheless, the DOIs support your recommendation that students on all campuses have access to equitable equipment and resources, similar classroom experiences, and equal opportunity for success. Please continue to work with your Division Deans and DOIs to improve classroom resources across the college. The same applies to equitable access to tutoring and academic support, including ALC classes.

4. CG Classes, Study Skills, and Liaison with Student Services

As noted above, some of this work does not require new resources but is a matter of leadership and focused attention. However, a new CG course combining study skills, mitigation of math anxiety, and career exploration in CTE and STEM is a creative idea to be taken up by the CG SAC. Whether this new course is developed and approved and becomes a new requirement for pre-college students will be subject to the college’s normal curriculum approval processes and may depend on many factors, including potential revisions to the pre-college Math sequence, recommendations on pre-college reading and writing courses coming from the DE Task Force, and recommendations from the CG SAC on curriculum and instructor qualifications, among others. Nevertheless, this is an idea definitely worth pursuing while other work strengthening the connections between the Math SAC and student services is ongoing.
4. Closing Comments

It is immediately apparent to us that the Math SAC is taking seriously and working hard at addressing the issues of lack of student success in pre-college Math and its impact on the overall success and completion of PCC students. Structures within the Math SAC, including the Pre-College Committee, the Learning Assessment Subcommittee, and others, as well as the Math Leaders Group, are well positioned to continue this work.

We want to thank you for your hard work and creativity in addressing these issues.

We want to thank you for such a thoughtful and thorough Program Review document and discussion.

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Kendra Cawley

Admin Response Math 2014