Teaching Philosophy

My teaching philosophy can be described using three words: Connections, Community, and Concepts.

An important aspect of my career at Seattle Central Community College is making connections to students. Many students share their concerns about time management, study skills, and their ability to reach their goals. I try to offer encouragement, while helping them self-assess and overcome obstacles to learning. A significant percentage of the students who enter my classes are anxious about learning mathematics. For some this translates into math phobia or test anxiety. Each quarter, it is important for me to identify students who are dealing with these issues so that I can offer suggestions for how to overcome them. A large part of my career satisfaction is based on connections to students, colleagues, and the community.

I believe that a supportive and caring learning community is paramount to retention and success. The norms of my classroom are designed to build a supportive environment which serves not only to lessen anxiety and promote social connections, but also motivates students to learn mathematics. The class structure has students identify what they already know, what Vygotsky calls the “Zone of Proximal Development,” and provides the means to advance their understanding. This is accomplished by having students work individually and then share their thinking within a small group. Once the group is satisfied that they have the correct answer, they are encouraged to explain their solution process to the class. Students learn to take responsibility for their work and their group’s work. Respect is developed as social connections are made and strengthened. I have found that if given the opportunity many students prefer to continue within a classroom environment for a full year rather than switching classes or instructors each quarter. For this reason, I decided to teach both MATH084, 085, & 098 and MATH091, 092, & 136 as a series of courses. I demonstrate my respect for students by using democratic methods for assessing their mathematics understanding and in the management of the classroom setting.

I believe that mathematics education must be centered on understanding underlying concepts. This is accomplished by deeply embedding the mathematics in a context to which students can relate. At the beginning of each quarter I ask students to share their goals. I then try to incorporate those goals in the context of the math problems we study. Einstein’s quote, “Imagination is more important than knowledge,” implies that although mathematical knowledge is important, it is imagination that allows us to apply that knowledge. This quote seems counter-intuitive to students who have learned that math is a matter of rote memorization and practice. I try to dispel this limited view of mathematics by having students grapple with complex word problems. Understanding is demonstrated by students’ ability to use critical thinking to solve problems, and communicating their understanding of how the math equations, graphs, and contextual information relate to one another.

My objectives are to: (a) enhance students’ understanding of mathematics at a conceptual level, (b) provide opportunities for students to demonstrate and communicate their knowledge, (c) improve students’ use of self-assessment methods, (d) have students think critically, (e) enhance students’ study and group skills, (f) have students apply quantitative reasoning to real world situations, and (g) stimulate students’ imagination. I believe that focusing on Connections, Community, and Concepts, I can achieve these objectives.
Personal Evaluation: Professional Development Plan

I believe that teaching as a profession requires continual development of skills and broadening of knowledge. My professional development plan will be updated quarterly.

The plan focuses on four Development Areas:

(1) Teaching Skills
(2) Research
(3) Community Relations
(4) Professional Network

Each Development Area contains three sections:

(a) Goals
(b) Evaluation — what has been accomplished to-date in addressing the objectives
(c) Recommendations — potential pathways to address the objectives.

Teaching Skills

Goals
Further develop my understanding of:

1. Math Content Knowledge, Pedagogical Skills, and Technological Abilities to enhance students’ learning experience
2. Assessment Viability and Reliability to provide an accurate representation of what students are learning
3. Multi-Cultural Education to better address the needs of our diverse student population
4. Authentic Learning to make the learning of mathematics more relevant to students’ lives and goals
5. Democratic Classroom Norms that provide a caring, respectful environment to encourage student retention

Evaluation

Math Content Knowledge, Pedagogical Skills, and Technological Abilities
Nov. 2-3, 2007:
I attended a TI-Nspire Workshop at John Stanford Center in Seattle. TI-Nspire is the latest Texas Instruments’ classroom graphing calculator and CAS system. I believe this tool can help me to create better assessments as graphs can be downloaded to the computer. Assessments can be created on the equipment and then printed or used interactively by the students. I plan to share what I have learned with my department.

October 2007
Mathematica workshop—Mathematica is a program used in the math department to support learning of calculus. Although I do not teach calculus, I think it is important to maintain my skills and learn to use the tools that my colleagues consider important.

2007 Read:

This book discusses basic differences in attitude and training, and how those differences manifest as differences in teaching style and expectations for their students. In Chapter 4 Liping Ma talks about how Chinese teachers tend to think more like mathematicians and are more willing to explore math concepts than their US counterparts.


This book is about an award winning elementary school teacher. I incorporated a chapter (Ch.10 When Numbers get Serious) mid-quarter review as part of my Math for Elementary Teachers’ course.

**October 2006**

Webpage Design Workshop—At the workshop, I learned how to use our on-line system.

Results:

1) I developed and maintain a faculty webpage that includes links to the courses I teach, my doctoral dissertation, this professional development plan, conference attendance, etc. [http://seattlecentral.edu/faculty/aleyv/MathForTeachers_index.htm](http://seattlecentral.edu/faculty/aleyv/MathForTeachers_index.htm)

2) Each course has its own page which includes the course syllabi, calendar, and links to in-class problems.

3) I connected with the web design class on the SCCC campus who developed the template for a Math for Elementary Teachers’ webpage. I maintain and update these pages. They include information about service learning and a library of student projects. Also included is a Blog for each of the MAT170 and 171 classes. Students can access the project library and class Blog during and after they have completed the course. [http://seattlecentral.edu/faculty/aleyv/MathForTeachers_index.htm](http://seattlecentral.edu/faculty/aleyv/MathForTeachers_index.htm)

**2005 Read:**


This book offers insights into how children learn mathematics through the experiences of a teacher/researcher. Emphasis on process suggests that students learn best when we understand what they already know and having them present their multiple ways to solve problems. Lampert has her students communicate their understanding of the math they are learning, first from a personal perspective (in their own words) and then moves them towards a more formalized mathematical understanding. This method of teaching is opposite traditional methods that demonstrate a process and then attempt to relate it to what students already know and understand. Although this book focuses on elementary levels, there is much to gain in understanding some of the broader issues for teaching.

**Assessment Viability and Reliability**

**October 2007—Present**

Accreditation Committee—I am the co-chair of our Science and Math Division committee called the Science and Math Outcomes Assessment (SAMOA) committee. We meet monthly to map
the math and science programs offered through our division, create an AST degree map, and help to develop assessable outcomes for each program.

*September 2007—Present:*  
WAMAP—I attended a workshop introducing this on-line assessment program (developed through the Transition Math Project Grant) where students can do homework on-line and get immediate feedback. This program is free for both the instructors’ and the students’ use.  
Results: I incorporated WAMAP into my MAT084 and MAT085 classes as the on-line homework system.

*January 2007—June 2007:*  
On-line homework—I piloted the on-line homework options offered through our textbook publishers for two quarters (MAT084, 085, 098). Although I really liked the results for students, the cost to students is not acceptable.

**Read 2007:**  
This book emphasizes the importance of starting from what a student knows, involving them actively in the learning process, developing their self-assessment skills, and the importance of the social element of learning.

**Read 2005:**  
This book introduced me to the terms viability and reliability. Viability relates to how well the tool assesses what was learned, while reliability is concerned with making sure that grading is the same for all students and can be replicated and supported. This book helped me to think about my assessment practices more deeply.

**Multi-Cultural Education**  
*2006 Read:*  
This book provides a viewpoint for understanding the anger and hatred directed at our country. This world view helps me to better empathize and understand cultures other than my own.

This book helped me to better empathize with some of the social issues my students may be dealing with in their personal lives outside of school. It also inspired me to develop a reflective paper assignment that I incorporated into the Math for Elementary School Teachers’ course.

I think it is important to read books by Kozol, as he provides a perspective concerning the state
of our educational system that is counter to my personal experiences.

*Sep. 2005-Present:*
Group Work— I designed and implemented group work for in-class time and testing. The intent is to build a classroom community where students support one another’s learning and social growth, develop and enhance their communication skills, and learn to cope with math phobia and test anxiety while dispelling cultural stereotypes. The group process addresses the needs of students who are social learners, those whose cultures emphasize group success over individual achievement, and English-language learners.

*2005 Read:*
Gallien, Jr., Louis B. and Peterson, Marshalita Sims, *Instructing and Mentoring the African American College Student: Strategies for Success in Higher Education*
This book suggests that a strong, supportive community, where instructors and staff mentor students, and development of a social network are very important influences on student retention.

**Authentic Learning**
*Sep. 2007-Present:*
Service Learning Credits—I offer optional service learning credits in all my developmental classes (MAT084, 085, 098). The placements include during and after-school math tutoring at local schools. The students are required to submit a reflective paper before finals week that makes connections between the mathematics they are learning in class with what they are doing in the community.

*Sep. 2006-Present:*
- Service Learning Credits—I offer optional service learning credits in the Math for Elementary School Teachers’ courses (MAT170 and 171). The service learning placements include during and after-school math tutoring in local elementary and middle schools. These opportunities enhance the connection between what the pre-service teachers are learning in our class with the math children are struggling with in primary grades. It gives students an opportunity to document their time in working with elementary school children which most teacher education programs expect as an entry requirement into their programs. The students are required to submit a reflective paper before finals week that makes connections between the mathematics they are learning in class with what they are doing in the community.
- MAT170 & 171 Quarter Project—Students choose a math concept, a theme (art, music, literature, motion, or culture), and a grade level. They create or find an activity and must do that activity with one or more children. The projects are posted on the Math for Elementary School Teachers site [http://seattlecentral.edu/faculty/aleyv/MathForTeachers_index.htm](http://seattlecentral.edu/faculty/aleyv/MathForTeachers_index.htm).
  This project helps students appreciate how to integrate math across the curriculum.

*Sep. 2005-Present:*
Complex Word Problems—I try to align the context of complex word problems with students’ interests and needs. At the beginning of each quarter I ask students to share their career goals. I deliberately choose context that I believe my students will consider relevant to their lives and goals. We discuss what the mathematics means in the context of the problem as well as the
applicability of the problem to different careers and to their lives as Seattle, Washington State, United States, and world citizens. The class work focuses on challenging word problems which elevates the cognitive expectations beyond what would be possible if students worked alone. (The homework focus is on procedural skills which are better addressed on an individual basis using immediate feedback and practice.)

**Democratic classroom norms**

*Sep.2005-Present:*

- **Assessment of Student Learning**—I do not believe in assigning ‘busywork’ and feel that the grade a student gets in class should reflect their level of understanding of the mathematics. For example, if I find that a student is scoring high on tests and quizzes, but their homework and attendance are hurting their overall grade for the quarter, I speak privately with the student to assess their particular issues. Many times I recommend that they receive the test grade as their overall grade for the course when it is a better reflective of what they know and understand.

- **Final Exam**—The final exam grade replaces the lowest test score for the quarter. This takes the stress off the final exam, while providing an opportunity for students to demonstrate their growth of understanding. It also encourages students to self-assess and provides some flexibility for students who may have missed one of the tests during the quarter.

- **Student Feedback**—Students are active in communicating their needs and taking responsibility for their learning. I periodically ask for feedback and then incorporate their suggestions into the classroom norms. For example at the end of the 6th week, during Fall quarter 2007, I asked my intermediate algebra class to share what was working well and provide suggestions for changes that would help them learn better. Many students asked for more homework problems, more lecture, and less group time. I implemented these changes without compromising the classroom norms. Feedback, two weeks after implementation, indicates that the students appreciate the changes.

- **Mentoring Students**—I try to educate students about their options for finding and utilizing support systems that are available on our campus (tutoring centers, career counseling, etc), and discuss pro-active methods they can use to overcome math phobia and test anxiety. Students feel comfortable discussing their career goals and sharing issues about juggling home, work, and school responsibilities. I encourage students to visit with me during office hours or make an appointment to meet with me at another time.

- **Webpage**—My interactive course syllabus and calendar provide homework assignments for the quarter and links to the daily in-class problems. This allows absent students to keep up with the work and encourages all students to develop time-management skills and to take responsibility for handing in assignments early when they know they will not be able to attend class. I adjust the calendar as needed. For example, when my students requested more homework, I posted the assignments.

**Recommendations**

- I would like to further develop opportunities to improve my teaching practice, i.e., reading, observing colleagues’ teaching, have colleagues observe my teaching, video record my teaching to self-assess my skills, collect input from students, and attend workshops.

- Develop and take part in a Professional Learning Community (PLC)

- Integrate information literacy into my curriculum and classroom norms (I have an idea to
connect the math to students interests and goals—possibly have them research a professional journal that relates to their field of interest. Then the students would analyze the math in one of the articles.)

- I would like to use WAMAP for on-line homework assignments for my MAT098 classes (align with our new textbook)
- I would like to explore how to integrate TI-Nspire into my planning and teaching.
- Learn another language, i.e., Spanish

**Research**

**Goals**
I would like to research:
1. **New Courses** to better support our student population’s career goals
2. **My Teaching Practice** to improve student success and retention

**Evaluation**
1. **New Courses**
   **November 2007-Present**
   Allied Health Math Class (MAT107)—Greg Harbaugh and I met with three representatives of the Allied Health Division in November 2007. We created a math course (MAT107) that will meet the needs of the nursing and respiratory care programs; which combined have approximately 75 students per year. Respiratory care will require the course as a pre-requisite to their program, and nursing will make it part of their program. Greg has agreed to teach two sections during Fall quarter 2008, and possibly one during the summer of 2008. I am considering teaching a Spring 2009 section.

   **May 2007—June 2008**
   Math and Science Methods for Working with Young Children (CFS215)—In May of 2007, I met with Al Griswold. We discussed the needs of the early childhood education certificate program. Over the 2007 summer, I developed a math and science methods course for the Early Childhood Education (ECE) Certificate program. I recommended that students take MAT170 and a science for non-science majors as pre-requisites to taking the methods course which will be a requirement for earning the certificate. I will be the lead teacher for the course when it is first offered Spring quarter 2008.

   **May 2007—Present**
   Interdisciplinary Science Course—I organized a committee to develop an Interdisciplinary Science Series for non-science majors. This series is modeled after the one offered at Green River Community College. In October of 2007, I turned over the chair of this committee to one of our science instructors; however, I remain an active member of the committee.

   **April 2006—Present**
   Math for Elementary School Teachers Series (MAT170, 171, & 172)—I developed the Math for Elementary School Teachers Series modeled after the one offered at Green River Community College. The courses were designed to align with the UW MA170 to make sure that transferability would be seamless. I started teaching the series Fall Quarter 2006. In winter quarter 2006, we decided to condense the three courses into two (MAT170 & 171). Starting in
Fall 2007, I have been offering the two-course series.

Recommendations

- I will continue to network with others in the college to determine interest areas for other math courses. I am interested in interdisciplinary courses, i.e., math and art, math and music, and math and social sciences.
- Develop a collection of case studies that can be used to evaluate student learning, retention, and motivation within my own classroom and across the campus.
- Help develop a research report for the Applied Math Project-Seattle (AMP-S) that could be published to show results of the project.

Community Relations

Goals

I would like to:

1. Connect with the Local Community to provide a richer educational experience for my students.
2. Develop and Enhance Pathways for high school students to enter and succeed in post-secondary education, and to increase retention and graduation percentages.

Evaluation

1. Connect with the Local Community
   September 2007 – Present
   Service Learning—In all of the developmental classes I teach, I am offering my students the option to sign-up for service learning credits. Students can volunteer in after-school programs at local elementary and middle schools. The requirement is that they are helping young children learn mathematics. This experience helps our local schools and helps to improve our students’ self-confidence and connection to the local community.

2. Develop and Enhance Pathways
   April 2007—Present
   Applied Math Project of Seattle (AMP-S)—I am the lead for this grant, which is a partnership with the Seattle Community College District (SCCD), Seattle Public School District (SPS), University of Washington (UW), and the Washington Applied Math Council (WAMC). The purpose of this grant is to align the applied math curriculum with the College Readiness Standards. We are doing this by developing a professional learning community where we conduct lesson studies. The lessons that are enhanced through this process will be posted on a state site. This is the pilot year for the program. We hope to expand district-wide in 2008-2009 and state-wide 2009-2010. We are hoping that these new learning communities will result in improved teaching and learning, as well as stimulate the development of new articulation agreements between the high school and college programs.

   Seattle Transition Project (STP)—I am a co-grant author and organizer. This is a partnership with Seattle Community College District (SCCD), Seattle Public School District (SPS), and MESA. The intent of the grant is to increase the number of students (with a focus on high-needs population) ready for college level mathematics when they graduate from high school. I stepped
down from this project to develop and lead the AMP-S

**Recommendations**

- I would like to find other options for developmental math students to be involved in the local community, i.e., working with non-profit organizations to help them collect and analyze data.
- I would like to get more involved with the Teachers of Tomorrow (T.O.T.) club on campus and help them outreach to local high schools and possibly sponsor a Future Teachers Conference on our campus.
- I am very focused on taking the AMP-S to the district-wide and state-wide levels

**Professional Network**

**Goals**

1. **Professional Associations**—Develop and maintain relationships with colleagues at other institutions to improve my teaching
2. **Committees & Division Retreats**—Provide clarification of SCCC processes, support services, and insight into the student population to help me better understand our unique student population, my colleagues, and our college
3. **Education Community**—Keep current with developments in education in our region, state, country, and world-wide to improve my teaching and to encourage students to attend our college

**Evaluation**

1. **Professional Associations**
   
   **Sep. 2005--Present**
   
   Washington Teachers of Teachers of Mathematics (WaToToM): Participate in the yearly conference where we work towards supporting each other so that together we can support Washington's K-12 mathematics education. At this conference we discuss different pedagogical methods and content that directly relates to teaching mathematics and methods to prospective elementary and secondary math teachers. We share vignettes and discuss ways we can collaborate. Participation addresses Objectives 2 & 3.

   In Feb. 2007, the WaToToM group formulated a position paper which was sent to the Office of the Superintendent of Public Instruction and/or the Higher Education Coordination Board. Since that time, members of the association have been invited to speak to, or work on a number of issues.

   In Feb. 2006, the WaToToM group was introduced to the Algebra Project (Robert Moses) teaching methods and a lesson from the project and learned about the Transition Math Project (TMP). Bill Moore explained the Transition Math Project (TMP) grant opportunity offered to colleges in partnership with local school districts. The goal of the grant is to disseminate the College Readiness Standards with a focused on increasing the number of students going transferring directly from high school into college level math classes.

2. **Committees & Division Retreats**
   
   **February 2008**
   
   Division Retreat: Bryan Johns and I have agreed to present program mapping to the division and
offer our services to help the programs use this model to do their curriculum review.

Faculty Development Committee member: Helped to approve faculty grant applications.

3. Education Community
April 2007
I was a presenter at the Continuums of Service Conference in San Jose, Calif. Our workshop, "Writing With Purpose," examined reflection on the service-learning experience from a variety of perspectives and disciplines, through the vehicle of student writing. We were a panel of three, from diverse disciplines (math, ESL and history), talking about different models for how we set up the learning structure and assessed the outcomes.

Recommendations
- I would like to extend the professional learning community formed through the Applied Math Project-Seattle (AMP-S) grant by doing lesson studies in my classes and the other college instructors’ classes who are participating in the project. The goal would be to improve the Seattle applied math teachers’ teaching skills as well my own and that of the other Workforce Training Math Instructors in our district and across the state.
- I would like to extend the AMP-S grant for two more years, to extend my network statewide.
- Present at AMATYC Conference Spring 2008, sharing my work with Early Childhood Development – Math and Science Methods Course and/or my work with Applied Math (AMP-S).