To what extent is teaching dependent on the level of the student’s ability?

How does one adjust (if at all) one’s pedagogy with this in mind?

Teachers should have high expectations for all students regardless their IEP’s, IQ levels and any other ways defined “abilities”. Teaching methods and pedagogy should be modified, adjusted and differentiated in order to reach all learners, however.

Do the Teacher Mentors believe that students build knowledge on previous knowledge (a constructivist approach)?

Yes, absolutely.

What is the nature of classroom interactions between students and teachers?

Friendly but with clear distinction of their roles.

To what extent do you use technology/Should one use technology?

I use technology to support the process of learning. Usually, I explain the concept first and monitor students understanding through various activities. When student reach a desired level of conceptual comprehension, I introduce technology and focus on building deeper comprehension of the concept.

Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students' learning. Calculators and computers are reshaping the mathematical landscape, and school mathematics should reflect those changes. Students can learn more mathematics more deeply with the appropriate and responsible use of technology. They can make and test conjectures. They can work at higher levels of generalization or abstraction. In the mathematics classrooms envisioned in Principles and Standards, every student has access to technology to facilitate his or her mathematics learning.

Technology also offers options for students with special needs. Some students may benefit from the more constrained and engaging task situations possible with computers. Students with physical challenges can become much more engaged in mathematics using special technologies.

Technology cannot replace the mathematics teacher, nor can it be used as a replacement for basic understandings and intuitions. The teacher must make prudent decisions about when and how to use technology and should ensure that the technology is enhancing students' mathematical thinking.
Sometimes I am concerned that technology is overused. I met students who couldn’t add, subtract, multiply and divide without a calculator. Those students are vulnerable without calculators. They do not understand basic arithmetic concepts and struggle with higher-level math courses.

Since the Math Department got two sets of graphic calculators, my students routinely use graphic calculators throughout the curriculum. It helps to address multiple learning styles (verbal, visual, computational). Moreover, the technology makes mathematics more accessible for more students and permits the instruction to focus on goals in which mathematical thinking and problem solving are the most important. The use of calculators also eased some math anxiety among students who could not perform any math calculations without a calculator.

My students were never overexposed to the use of technology. Many of them are learning how to use a graphic calculator from scratch. I would like them to master these skills and learn about as many calculators’ features as possible, as it may have a positive impact on their CATS, SAT/ACT tests scores. I do not plan a broad use of computer labs, as the effectiveness of time use is very limited with this kind of activities.

• To what extent do you use manipulatives?/Should one use manipulatives?
I use Algebra blocks occasionally. I think that they may help some students who have difficulty with algebraic concepts.

• To what extent does the existence of a state-wide assessment (or NCTM standards) bear on style or pedagogy?
I try to teach to the objectives designed according to the highest level of Bloom’s Taxonomy. The statewide assessments’ questions usually target higher levels of the depth of knowledge so my students should benefit from my approach to teaching.

• To what extent should students be responsible for their own learning? (For example, should students be assigned much homework out of class? Does this depend on the course (ALG I for College Bound vs. slower moving ALG I)?)
Students are responsible for their own learning and should be taught to be responsible. Homework is essential in the process of learning. It helps retain new skills and master them. Homework should be assigned to all students.
• To what extent does parental involvement change the pedagogical approach of the Teacher Mentor?
When parents are involved it helps students. It does not change the pedagogical approach.

• What role does the textbook play in your course? What role would you like it to play?
The textbook is the source of information and knowledge. Students, however, use it only as a source of homework problems. Students need to be taught how to use textbooks and how to read math text.

• What is the role of structured time in learning? (say individual vs. group work)
A collaborative learning environment should be highly structured. Students must be taught how to work in teams. The procedures should be established and practiced. Varies activities tailored for teamwork should be applied constantly. It is a high maintenance environment. There is no proof that it enhances learning mathematics but it seems to release some anxiety.

• How does the tension between student discipline, attitude, and learning play out in the approach of the Teacher Mentor to pedagogy?
It is rewarding to teach honors classes where students are motivated and where there are no discipline and attitude problems. In regular classes, problems with discipline and attitude could be minimized if a school establishes a rigorous disciplinary policy and rewards high work ethics and positive attitudes.

• Is there a “rural nature to math pedagogy”? Answer anyway you like. For example, for those teachers who have taught either in suburban or city schools, do you see a difference in your approach at Bath or Powell County to your approach at an urban school? {There is debate in the literature as to whether there is a true meaning to “rural mathematics education”}
I taught in an urban school before. My approach to teaching in Powell County is the same as it was elsewhere. A local community establishes standards for their schools. If they are high, teaching in a rural school is similar to teaching in any other school. If a local community supports mediocrity and lowers standards for their schools there is no real
teaching math. If the generally accepted philosophy is, “excellence in math is unattainable, math is difficult and there is no shame to an ignorant in it”, there is great community pressure for math teacher to agree with this philosophy. I hope that rural schools that adopted such philosophy will be eliminated from the scene as the year 2014 approaches.
My Philosophy of Education

My philosophy of education is a blend of perennialism and essentialism. I believe, as the perennialist Robert Maynard Hutchins put forth, that ideas are the only true reality. I also believe that one of the primary goals of education is to deliver to society men and women who share a common knowledge of these truths and realities, so that they may think in a commonly understood pattern as they work together through life.

The role of students in such a philosophy is to acquire knowledge and through it, to learn the skills used in thinking. Students should clearly understand why they are in my classroom and how what they are learning will be of value to them. This reinforces the virtue of knowledge as the basis for decision-making and living productively in society. It answers the question we all want answered: “What’s in it for me?”

To do this, I believe a teacher must establish herself as the benevolent dictator of the classroom society, imparting the fundamentals that will later be used to branch out into more sophisticated areas, such as problem-solving, investigating and decision-making. Mathematics can be a very creative means of expression. Just think of the many ways you can express the number three: \( \frac{9}{3} \), one less than four, one more than two, half of six and so on. But before you knew this, you had to know the numbers, their relationships to one another and how to use fractions, addition and subtraction. These processes, I believe are best taught through a philosophy that requires an acceptance of a common reality, as expressed by the teacher, in a student-centered environment.

The best type of curriculum for this philosophy is one that builds upon the theme of mathematics as a practical skill. The curriculum should provide investigations of real life situations. It should demonstrate how mathematics helps us solve problems that are generally universal, such as budgeting money, measuring goods or the time involved in services. A curriculum with these features demonstrates no only “what’s in it for me,” but also addresses a diverse student population, nurturing different strengths, talents and needs.
Engaging students in small groups to work together on tasks lets each bring his or her unique perspective to the task. They learn that, while there is only one right answer to many math problems, there may be a number of equally valid ways to express it, just as we saw in the example of expressing the number, three. This kind of group learning addresses a wide variety of learning styles, levels of intelligence and talents.

Such tasks and the lessons that lead up to them, however, should be precisely planned to develop the right thinking skills. In math, every step in solving a problem is important. The goal is not just to get the right answer. It is also to evaluate the accuracy of each move along the way. This kind of corporate learning teaches the value of seeing things through another’s eyes and appreciating the virtue of diversity in thought. It lets students discover that what they are learning from the teacher are true and fundamental lessons that can be applied in many ways. Ultimately, it prepares students with an understanding that no challenge is too difficult or insurmountable that it cannot be reasoned through, one step at a time.