

Qualitative Analysis Data

Each of the following pieces of data reflect some of the comments of a teacher participating in a focus group. Teachers are identified by a unique number to protect their anonymity. Their comments have been edited by the researcher in two ways: The first used common grammatical conventions to enhance the readability of the transcript, while the second removed data perceived to be extraneous to the purpose of the study.

- 2 The teacher must have a complete understanding of the mathematics content. She must have the capabilities of being multi-tasked like placing students, tutoring students, disciplining students...all at the same time! The teacher needs to be flexible and willing to individualize the program for each student.
- 4 You must have a firm grasp of content and be able to switch from topic to topic without difficulty. You must be able to spot and correct errors on the screen, and you must be able to explain concepts a variety of ways so students who cannot follow the speaker can follow you. You really need to be aware of what is going on so that you can keep students on task and monitor the class to be sure the equipment is being cared for properly.
- 6 Good organization skills to track each student and keep up with their pace so that you know when they are spending too much time on a lesson. Some students don't ask for help and will continue failing if you don't know when to step in. The task is more physically demanding than a regular classroom. After a day of tutoring individuals and going from station to station where everyone is on a different concept it can be draining but I feel much more effective than delivering a concept to a group.
- 7 You must be able to rapidly switch gears to aim instruction at the individual students in words they understand, rather than aim it toward the overall group as you would in a traditional classroom. Because you are dealing predominantly one on one, you must be able to tailor your vocabulary, your presentation, your entire methodology to a single student's knowledge core.
- 8 You must have a really good knowledge of math. It is also really important to be able to manage everything going on.
- 11 Nerves of steel. There are moments when 30 children have questions and you can't get to any of them quickly enough.
- 16 You must be well organized and able to run a structured classroom in order to handle all the situation and problems that must be taken care of in this classroom. The teacher needs to be able to plan thoroughly in order to coordinate the computer lessons, which correlate with the course outline. There is also a need to be able to manage student behavior in an experienced, effective teacher this program will live up to its potential and really give the students a

good head start and a strong foundation in algebra. However, the administrators must not see it as a cure-all for weak teachers who cannot teach or manage a classroom. The teacher must not expect to just put the students on the computers and let the computers do all the teaching, as this is taking away from the effectiveness of this program. The teacher must be able to help the students pull together what they are learning on the computer lessons and transfer that knowledge to traditional lessons and test that they will run into later on in this class as well as in other math classes.

- 23 A teacher should have a good knowledge of algebra and algebraic methods and should be able to translate and simplify instructions from the program to the students. I almost forgot something really important—you also need basic computer skills.
- 24 Flexibility is the most important attribute that a teacher can have while using this program. I've learned a lot over this past year, and I have had to adjust the order of lessons, the structure of the class, and the grading procedures many times to best benefit the students' learning. Excitement is also a key to effectively using the program. If the teacher is excited about the program, they are more apt to learn more and pass the excitement on to the students. I really don't think that one has to have any special skills to effectively use the program because it is very user friendly. Being able to solve complex math problems is important so that you can help students work through them. Oh, I just remembered one more very important skill—a teacher has to be able to maintain order in the classroom. Otherwise, the students will not benefit from the program and the equipment will get stolen and/or destroyed.
- 25 I feel you need more planning time and the ability to multi-task.
- 26 There are only three things you really need: organization, patience, and flexibility.

Analysis of Data

Segments – List below, number by the teacher who is the source of the data. Extend the data table as needed.

Teacher Number	Segment	Topic
2	complete understanding of the mathematics content	Content
2	being multi-tasked	Teacher Function
2	needs to be flexible	Teacher Quality
2	willing to individualize	Teacher Attitude
2	capabilities of placing students	Teacher Skill
2	capabilities of tutoring students	Teacher Skill
2	capabilities of disciplining students	Teacher Skill

4	firm grasp of content	Content
4	be able to switch from topic to topic without difficulty	Teacher Function
4	be able to spot and correct errors on the screen	Teacher Function
4	must be able to explain concepts a variety of ways	Teacher Skill
4	be aware of what is going on	Teacher Attitude
4	keep students on task and monitor the class	Teacher Function
6	Good organization skills	Teacher Quality
6	keep up with their pace	Teacher Attitude
6	Some students don't ask for help...step in	Teacher Attitude
6	physically demanding	Teacher Attitude
6	tutoring individuals	Teacher Skill
6	going from station to station	Teacher Skill
6	everyone is on a different concept it can be draining	Teacher Attitude
7	must be able to rapidly switch gears	Teacher Function
7	aim instruction at the individual students	Teacher Quality
7	dealing predominantly one on one	Teacher Skill
7	must be able to tailor your vocabulary	Teacher Skill
7	must be able to tailor your presentation	Teacher Skill
7	must be able to tailor your entire methodology	Teacher Skill
8	must have a really good knowledge of math	Content
8	manage everything going on	Teacher Function
11	Nerves of steel	Teacher Attitude
11	moments...can't get to any of them quickly enough	Teacher Attitude
16	must be well organized	Teacher Quality
16	run a structured classroom	Teacher Function
16	needs to be able to plan thoroughly	Teacher Quality
16	coordinate the computer lessons	Teacher Skill
16	manage student behavior	Teacher Attitude
16	experienced, effective teacher	Teacher Quality
16	Administrators not...a cure-all for weak teachers	Teacher Attitude
16	must not expect...the computers do all the teaching	Teacher Attitude
16	help the students pull together what they are learning	Teacher Skill
16	transfer that knowledge to traditional lessons	Teacher Skill
23	good knowledge of algebra and algebraic methods	Content
23	should be able to translate and simplify instructions	Teacher Skill
23	basic computer skills	Teacher Quality
24	Flexibility	Teacher Quality
24	adjust the order of lessons	Teacher Function
24	adjust structure of the class	Teacher Function
24	adjust grading procedures	Teacher Function
24	Excitement	Teacher Attitude
24	really don't think that one has to have any special skills	Teacher Attitude
24	Being able to solve complex math problems	Content
24	has to be able to maintain order in the classroom	Teacher Quality
25	need more planning time	Teacher Attitude

25	ability to multi-task	Teacher Function
26	Organization	Teacher Quality
26	Patience	Teacher Attitude
26	Flexibility	Teacher Quality

Categories

Teacher Number	Segment	Topic
	Content	
2	complete understanding of the mathematics content	Content
4	firm grasp of content	Content
8	must have a really good knowledge of math	Content
23	good knowledge of algebra and algebraic methods	Content
24	Being able to solve complex math problems	Content
	Teacher Function	
2	being multi-tasked	Teacher Function
4	be able to switch from topic to topic without difficulty	Teacher Function
4	be able to spot and correct errors on the screen	Teacher Function
4	keep students on task and monitor the class	Teacher Function
7	must be able to rapidly switch gears	Teacher Function
8	manage everything going on	Teacher Function
16	run a structured classroom	Teacher Function
24	adjust the order of lessons	Teacher Function
24	adjust structure of the class	Teacher Function
24	adjust grading procedures	Teacher Function
25	ability to multi-task	Teacher Function
	Teacher Quality	
2	needs to be flexible	Teacher Quality
6	Good organization skills	Teacher Quality
7	aim instruction at the individual students	Teacher Quality
16	must be well organized	Teacher Quality
16	needs to be able to plan thoroughly	Teacher Quality
16	experienced, effective teacher	Teacher Quality
23	basic computer skills	Teacher Quality
24	Flexibility	Teacher Quality
24	has to be able to maintain order in the classroom	Teacher Quality
26	Organization	Teacher Quality
26	Flexibility	Teacher Quality
	Teacher Attitude	
2	willing to individualize	Teacher Attitude
4	be aware of what is going on	Teacher Attitude
6	keep up with their pace	Teacher Attitude
6	Some students don't ask for help...step in	Teacher Attitude

6	physically demanding	Teacher Attitude
6	everyone is on a different concept it can be draining	Teacher Attitude
11	Nerves of steel	Teacher Attitude
11	moments...can't get to any of them quickly enough	Teacher Attitude
16	manage student behavior	Teacher Attitude
16	Administrators not...a cure-all for weak teachers	Teacher Attitude
16	must not expect...the computers do all the teaching	Teacher Attitude
24	Excitement	Teacher Attitude
24	really don't think that one has to have any special skills	Teacher Attitude
25	need more planning time	Teacher Attitude
26	Patience	Teacher Attitude
	Teacher Skill	
2	capabilities of placing students	Teacher Skill
2	capabilities of tutoring students	Teacher Skill
2	capabilities of disciplining students	Teacher Skill
4	must be able to explain concepts a variety of ways	Teacher Skill
6	tutoring individuals	Teacher Skill
6	going from station to station	Teacher Skill
7	dealing predominantly one on one	Teacher Skill
7	must be able to tailor your vocabulary	Teacher Skill
7	must be able to tailor your presentation	Teacher Skill
7	must be able to tailor your entire methodology	Teacher Skill
16	coordinate the computer lessons	Teacher Skill
16	help the students pull together what they are learning	Teacher Skill
16	transfer that knowledge to traditional lessons	Teacher Skill
23	should be able to translate and simplify instructions	Teacher Skill

Analysis, Findings and Conclusions

A focus group of teachers who were contacted to use a computer-based algebra program for all instruction or as a supplement in their classroom were asked “Based on your experiences this year, what skills do you feel are needed to effectively use the Algebra Computer Program in your classroom? The findings from their interviews were broken down into 5 categories, content, teacher function, teacher quality, teacher attitude, and teacher skill. Based on the findings it shows that knowing and understanding the math/algebra content was a small component that was needed to use the computer-based program. The teachers’ attitude along with their teaching skills proved to be one of the

biggest components in using the computer-based program effectively. Teacher quality also turns out to be an important factor. It's integral to the teacher being able to keep the kids in line, to teach the task at hand and to ensure that they fully understand the material. There are many benefits to implementing this computer-based algebra program, but the teachers are the main force of its success, without their skills, attitude, function, and quality, the program would not be as effective.