

Research Study¹**What perceptions do individuals, involved in mathematics teaching and learning, hold of the use of mathematics specialist teachers in Grades 6-8?**

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This research study, taking place in the province of Saskatchewan (Canada), was conducted with five different stakeholder groups: 1) elementary (K-8) school administrators, 2) Grade 6-8 teachers, 3) Grade 6-8 students, 4) their parents, and 5) university pre-service middle years teachers. Since these five groups of individuals are connected with mathematics education at the middle years/intermediate level, they each offer important perspectives on the benefits (perceived and/or observed) of educating mathematics specialist teachers for Saskatchewan elementary schools, specifically at the Grade 6-8 level. The research study was funded by a *Social Sciences and Humanities Research Council of Canada* (SSHRC) Insight Grant and was approved on ethical grounds by the University of Regina Research Ethics Board (REB). In addition, each of the four Saskatchewan school divisions involved in the study granted approval for schools within the division to participate in the research study.

Report on**Grade 6-8 STUDENT QUESTIONNAIRES**

The key aim of this part of the research study was to understand how Grade 6-8 students think about learning mathematics, and what they think about the role of mathematics specialist teachers in Grades 6-8 classrooms. This report represents a summary of responses to select questions from completed student questionnaires returned by mail to the researcher (Dr. Kathleen Nolan). In total, approximately 1200 student questionnaires were distributed to Grade 6-8 students in 14 schools² across 4 Saskatchewan school divisions. Students were asked to complete the questionnaire at home and return

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² There was a 15th school involved in the study but, at that school, the principal and teachers elected to administer the student questionnaires during class time. While the questionnaires were still completed anonymously by students, the principal collected all 38 questionnaires and delivered them to the researcher. Due to this different approach to completion and return of the questionnaires, the data analysis and report have been kept separate from the others; the report is available at a different link.

it by mail in the postage paid envelope provided. **Seventy-three (73) student questionnaires were returned** (approximately a 6% response rate).

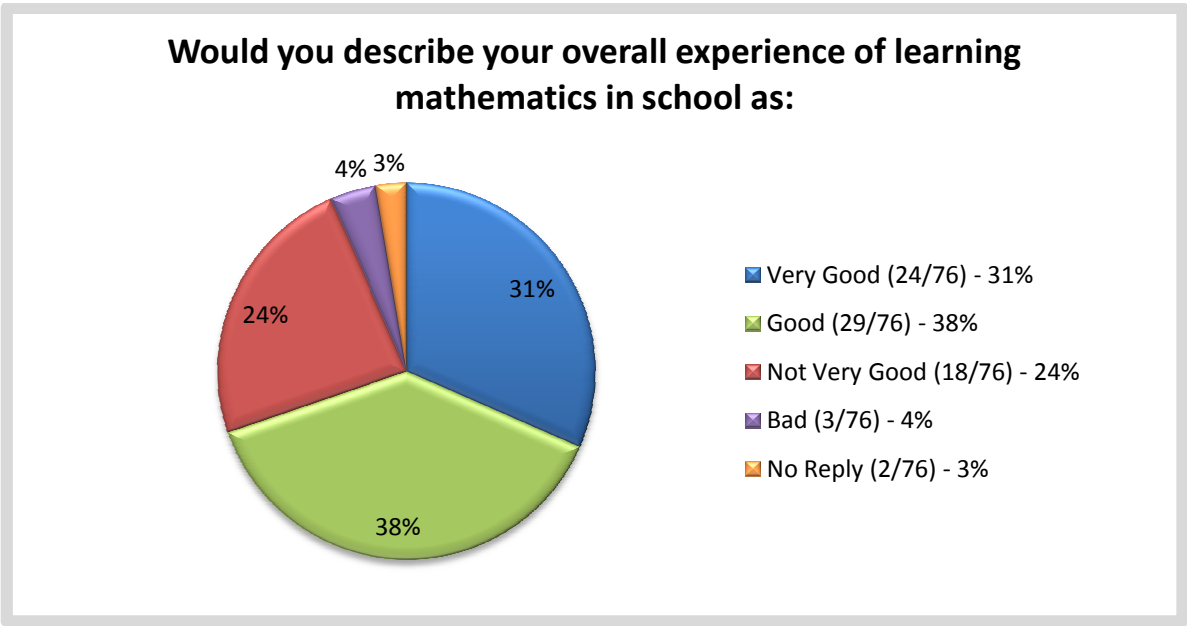
PART A: Current Attitudes and Practices

1. Would you describe your overall experience of learning mathematics in school as

- a. very good b. good c. not very good d. bad

Please explain.

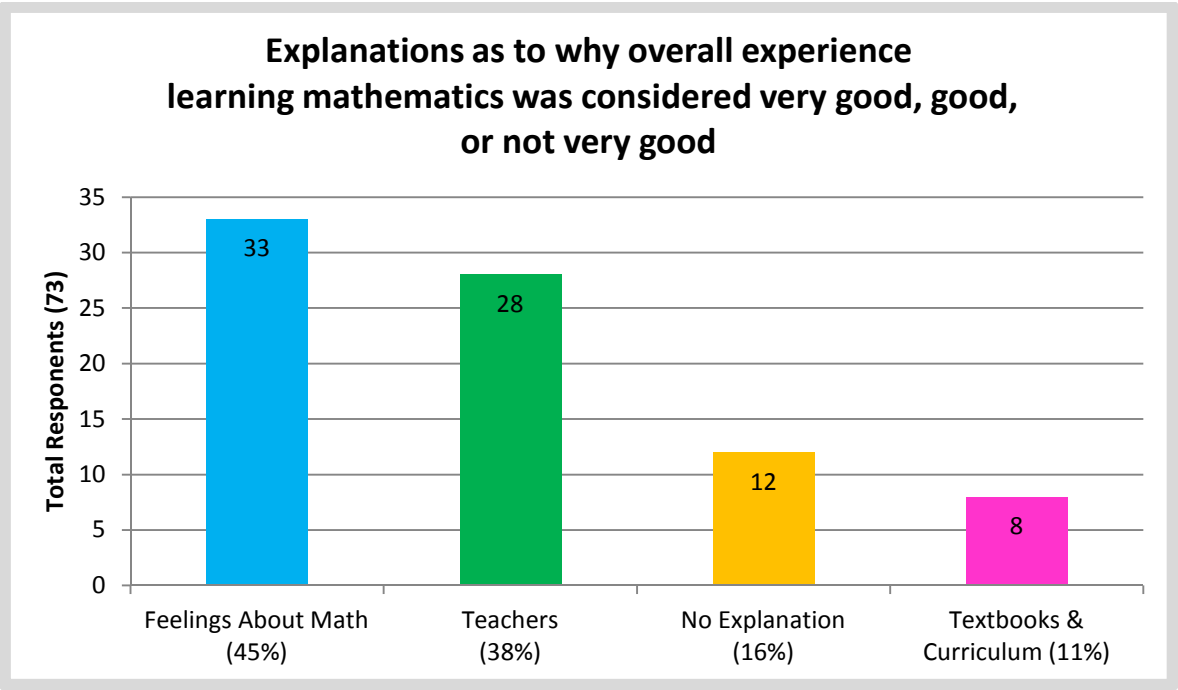
Note: 3 students circled more than one answer to reflect a response between choices, thus their answers were counted twice for a total of 76 responses to this question



The students (3/73) who identified their overall experience of learning mathematics in school as ‘bad’ offered the following explanations:

I hate math big time
I have not been doing well.
Because I hate math it's stupid

Other explanations of experience offered were categorized as follows:



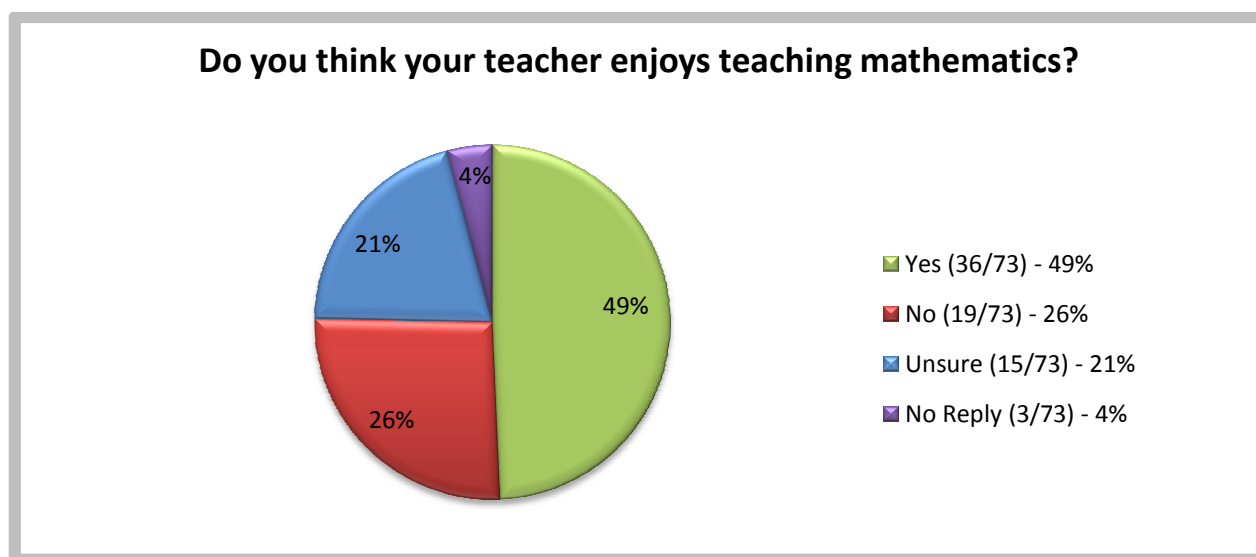
Explanation Themes	Example Questionnaire Responses
Feelings About Math (33/73) – 45%	<p>I have trouble with it. It is boring. Hard not fun.</p> <p>Math is my favorite subject and I do very well in it.</p> <p>I like math</p> <p>It's usually very good but sometimes feels useless.</p>
Teachers (28/73) – 38%	<p>In previous years I have recieved [sic] amazing math teachers who have always helped me understand and excel in math. This year, unfortunately, is not the case.</p> <p>We have a math teacher who only teaches math so this helps us learn at a deeper level.</p> <p>We got this consultant come in and she just ruined it. Now we don't learn anything. It has taken us lik 2 or 3 months just to finish one unit. [sic]</p>

Explanation Themes	Example Questionnaire Responses
Textbooks & Curriculum (8/73) – 11%	The text books are not very clear in explaining things & they are vague. Our curricular [sic] has been dumbed down and now it is too easy.

2. Do you find mathematics easy to learn or hard to learn? Why?

Question 2 has not been analysed at this time.

3. Do you think your teacher enjoys teaching mathematics? Explain your thinking.



Response Themes	Example Questionnaire Responses
Yes (36/73) – 49%	<p>Yes because he told us, and he's good at it</p> <p>I think my teacher does enjoy math because when she is explaining something she gets excited, or when a student starts to understand something she will get excited.</p> <p>Yes, because he knows how to explain well and smiles.</p> <p>Yes he is always willing to help if there is help needed and he offers after school help also during resseses to. [sic]</p>

Response Themes	Example Questionnaire Responses
No (19/73) – 26%	<p>No, because shes even confused by some of the ways of teaching, and how shes always re-explaining a way of doing something. [sic]</p> <p>No, because we complain about assignments and we complain about not understanding.</p> <p>No because my class fools around</p>
Unsure (15/73) – 21%	<p>I'm not sure if my teacher enjoys teaching math or not but I know for a fact that she doesn't enjoy teaching is as much as she enjoys teaching our other subjects. She loves doing inquiry based learning which is basically hands on learning with no text books. But, unfortunately for my teacher that's all that math is – text books.</p> <p>I can't tell if she like math. But I like the way she teaches math.</p>

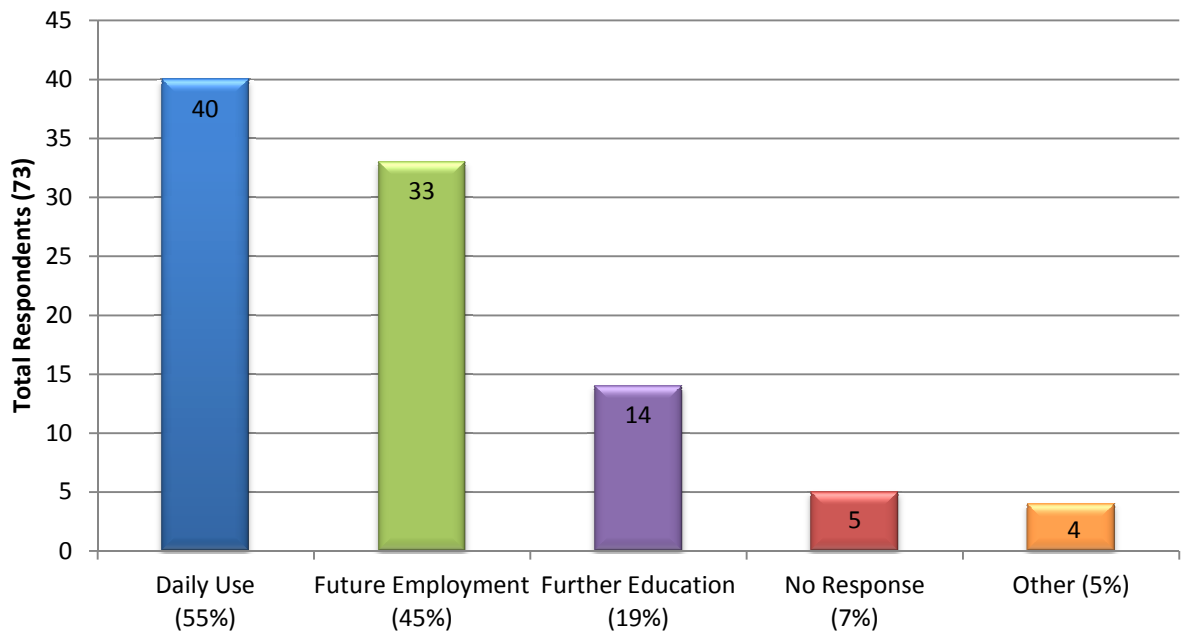
4. How do you think your parents feel about mathematics?

Question 4 has not been analysed at this time.

5. What do you think are the main reasons for learning mathematics?

See results next page.

What do you think are the main reasons for learning mathematics?



Reason Themes

Example Questionnaire Responses

Daily Use (40/73) – 55%

I think the main reasons for learning mathematics are it's an essential part of life. We use math in our everyday life. Once we get older we will be able to use more math frequently.

Everywhere you go, there is math. The store, school, libraries, etc. You need to understand math to success [sic], apparently.

I think it is commonly used in everyday life, but many people don't notice.

I think that the main reasons for learning math is because we will use it everyday [sic] no matter what we grow up to be – even if we don't realize it.

Future Employment (33/73) – 45%

Because you need to know stuff for jobs like engineers, architects, Lawyers, Pharmacists, Doctors and Business.

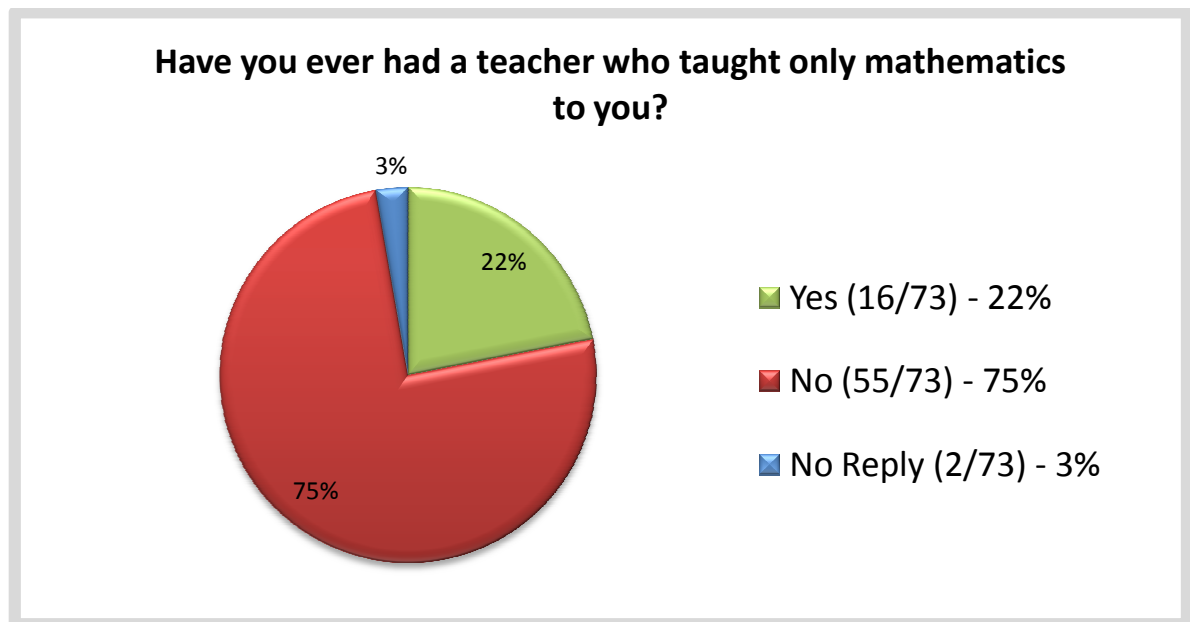
To get a job and to succeed [sic] in life.

To use math when your older because you will need it for every single job you take.

Reason Themes	Example Questionnaire Responses
Further Education (14/73) – 19%	To get smarter. So we ... can go on to post-secondary education.
No Response (5/73) – 7%	
Other (4/73) – 5%	Math is a key part to revolutionizing and changing our world. To make kids hate school. Not sure but I like it. The main reason that I am learning mathematics is because I have to.

PART B: Mathematics Teaching Specialists

1. Have you ever had a teacher who taught only mathematics to you (no other subjects)? If yes, what was it like?



Example 'Yes' responses of what it was like to have a teacher who taught only mathematics:

Yes I have. (In grade 2, we had a 2 & 1 split) Well I think it was good. The teacher who taught me only math helped me a lot. They could help me a lot because they knew all about math.

Yes, I really like it because she can help us in as many ways as possible. Like she could teach us with pictures, numbers or linking cubes.

Yes, it was the same as it usually is.

Yes, it's like they are enjoying it because that is their subject, like they are already experts in it and they want to share what they have learned to us, students.

I have had an math teacher that only teaches math, It's a good expiriance – I find he had better instructions, was more into teaching it and had different takes on how to learn math. [sic]

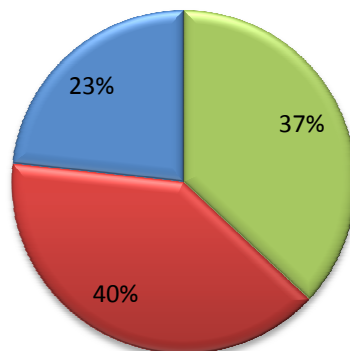
Yes – from my experience the teachers who taught me ONLY math were more strict than their reputations. I think it was because of the added challenge of behaviors.

2. How do you think your classroom would change if there was a different teacher for each subject?

Question 2 has not been analysed at this time.

3. Do you have any additional thoughts or comments to offer on the topic of being taught mathematics by a teacher who teaches ONLY mathematics at your school?

Do you have any additional thoughts or comments?



■ Yes (27/73) - 37%

■ No (29/73) - 40%

■ No Reply (17/73) - 23%

Examples of additional thoughts or comments offered on the topic of being taught mathematics by a teacher who teaches ONLY mathematics

I think that it would be an amazing idea to have teachers that only teach mathematics to teach us, I think we would see great improvement.

I think having a teacher just for math would not really change the way we do math.

It would be so much better the teacher would know what they were doing and not be learning/teaching with us. They would know methods the help kids understand things better. We wouldn't be only near the end of unit 3 of 8 textbook in May (14th).

I think that if I had a teacher that taught only math and taught me math, I would learn more because the teacher would be completely focused on teaching math, but the teacher could get bored by only teaching math.

I like that the mathematics teacher has a deeper understanding so that she can help me with difficult questions or units.

I personally don't think I would want or need that very much, though I'm sure it would benefit other students.

I wouldn't like a teacher who teaches only math.

I would like the math teacher to only teach math.

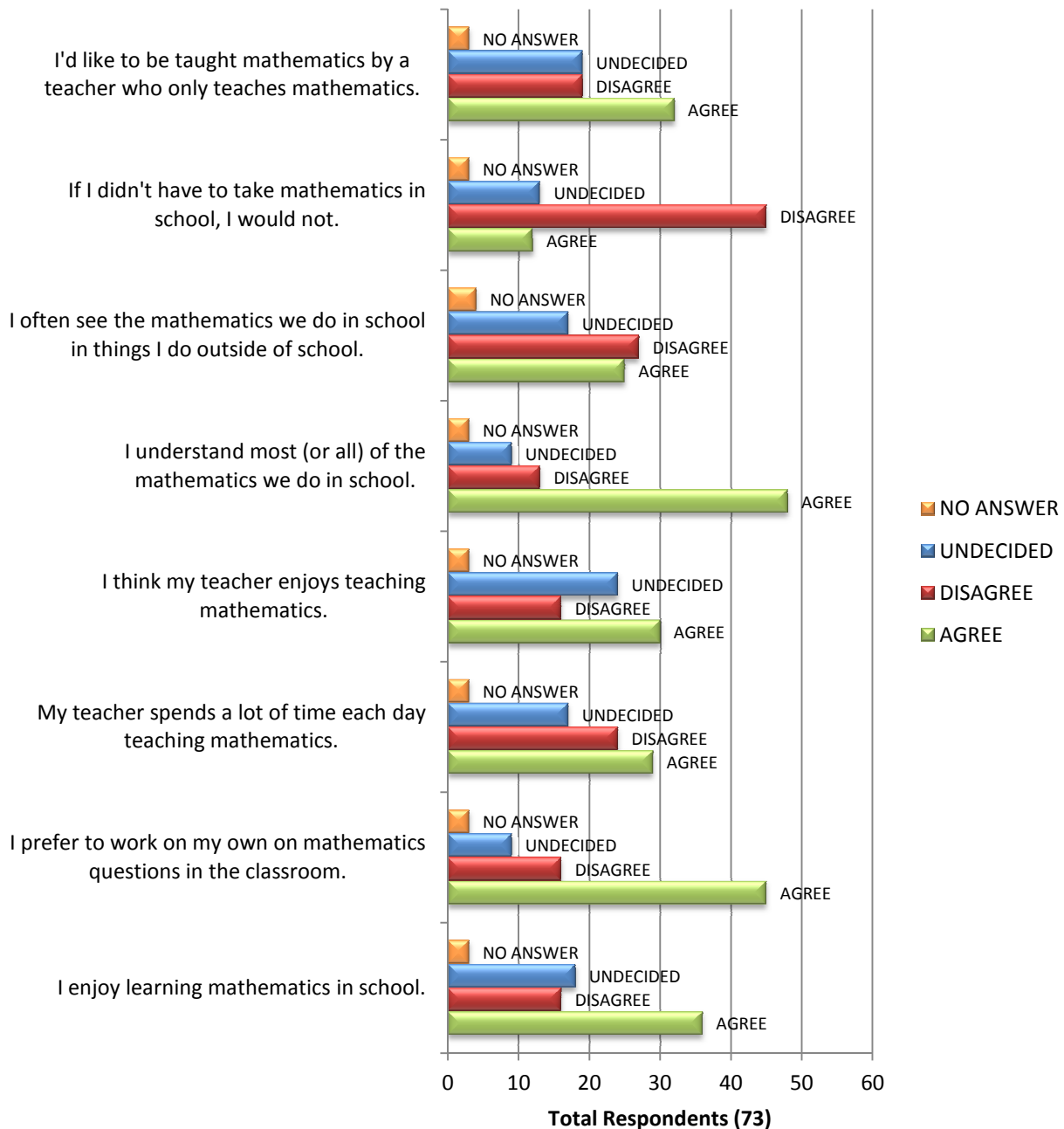
I believe that if our school had at least one little care about our proper education, they would realize that having a teacher that has a real degree for teaching mathematics would be very useful.

Agree/disagree statements:

For each statement below, decide whether you agree (A), disagree (D) or are undecided (U) and circle the letter corresponding to that decision.

- ♦ I enjoy learning mathematics in school. A D U
- ♦ I prefer to work on my own on mathematics questions in the classroom. A D U
- ♦ My teacher spends a lot of time each day teaching mathematics. A D U
- ♦ I think my teacher enjoys teaching mathematics. A D U
- ♦ I understand most (or all) of the mathematics we do in school. A D U
- ♦ I often see the mathematics we do in school in things I do outside of school. A D U
- ♦ If I didn't *have* to take mathematics in school, I would not. A D U
- ♦ I'd like to be taught mathematics by a teacher who only teaches mathematics. A D U

Student Replies to Agree/Disagree Statements



Please use the space below to explain your answers to any of the above statements.

See next page for example explanations.

Agree/disagree Statements	Example Questionnaire Responses
<p>I enjoy learning mathematics in school.</p>	<p>I enjoy learning mathematics because you can express yourself by raising your hand and telling what you think the answer to the question is. I also love learning <u>new</u> things every day when I take math.</p> <p>I do like [math] but it gets broing sometimes, thats all [sic]</p> <p>I enjoy learning math because it's challenging and makes me grow more determined.</p> <p>Math is my favorite subject so I enjoy and understand it.</p> <p>I like math but I just don't like the text book [sic] at all.</p> <p>It depends on the unit.</p>
<p>I prefer to work on my own on mathematics questions in the classroom.</p>	<p>I prefer to work on my own ... because I think that I get to concentrate better rather than working with somebody else.</p> <p>I find the higher the grade you move up to...the less math instruction their is...it's more just written on the board what text book pages and booklets to do and it's just into our hands. Group work is good too! [sic]</p> <p>I would rather work on my own then [sic] in a group of other students but I do like to work on it as a class with the teacher.</p> <p>I like doing math questions by myself because I understand what to do and the others that would work with me don't understand what to do. So they either copy my work (and take all of the credit for it) or they pester me until I help them and since they're clueless it takes the whole class, so I don't get my own work done and then it becomes homework.</p> <p>I prefer to work on my own because I can concentrate more while in classroom sometimes it's loud so I'll be distracted. [sic]</p> <p>Working by myself in easyer because its faster and I can consonetrate. [sic]</p> <p>I prefer working in groups of two because its easier to understand what your friend is doing then what your teacher is. [sic]</p>

Agree/disagree Statements	Example Questionnaire Responses
<p>My teacher spends a lot of time each day teaching mathematics.</p>	<p>We only have math three times a week so we don't talk about math on two days of the week.</p> <p>I can say my teacher spends lot of time teaching math because it's like our major subject so he really teaches us and spend time teaching us in math. [sic]</p> <p>My teacher spends to [sic] much time in math.</p> <p>We get an hour of math, but she only explains for about 10-15 mins.</p>
<p>I think my teacher enjoys teaching mathematics.</p>	<p>I think my teacher enjoys mathematics because he spend a lot of time teaching us math and he's determined teaching us about it. [sic]</p> <p>She gets in depth with math.</p>
<p>I understand most (or all) of the mathematics we do in school.</p>	<p>I understand most of the mathematics we do in school because I listen very well and sometimes, also, I raise my hand up to answer one of the questions.</p> <p>I understand most of the math we do in school because of the teacher that is working hard for us to understand math and because of the teacher that teaches us so well.</p> <p>I understand everything in math, I just don't like the way it's taught.</p> <p>I don't understand everything but mostly I do.</p> <p>I get the concepts but I just don't get how to do it.</p>
<p>I often see the mathematics we do in school in things I do outside of school.</p>	<p>I must say I find money, adding and multiplying is very good in the outside of school world but ratios, geometry and patterns I don't really see how they help me but I guess I am only twelve.</p> <p>I can't really say I do and I can't say I don't because addition, subtraction, multiplication and division are useful while the other topics, we don't use them.</p> <p>Some seems useless. Never seen it acually [sic] used. Most has a use.</p>

Agree/disagree Statements	Example Questionnaire Responses
<p>I often see the mathematics we do in school in things I do outside of school, continued.</p>	<p>The things my math teacher teaches us is that math can be used in real life situations. Every unit we do she will find a way to connect it to real life.</p> <p>In school math I don't often see outside of school.</p>
<p>If I didn't <i>have</i> to take mathematics in school, I would not.</p>	<p>Disagree. I love taking math class every day and I love learning new things.</p> <p>Math is an interesting subject. You will have a sense of achievement if you solve a problem correctly on your own. So I will take math even if I don't have to.</p> <p>I disagree cause if mathematics are not to be take in school we don't have knowledge in math not like we have today. [sic]</p> <p>I'm undecided because sometimes I do like it and sometimes I don't.</p> <p>I would always take math because I think its [sic] obligatory.</p> <p>Math is an essential part of life. If I didn't have it, I wouldn't have much knowledge.</p> <p>If I didn't have to take math I still would because we use math every day even if we are not aware and it is important to understand it.</p>
<p>I'd like to be taught mathematics by a teacher who only teaches mathematics.</p>	<p>Disagree. I guess that learning math with more than 1 person can be a lot of fun.</p> <p>I disagree because if the teacher is good even though he/she teaches any subject I can still understand math.</p> <p>I enjoy having a teacher who teaches each subject.</p> <p>I really like my teatcher and I just find it weird to have a different teatcher just for math. [sic]</p> <p>If we had a specialist for math we be way further along in the text book and the teacher wouldn't be 'learning with us'. We wouldn't have all these pointless strategies too. There wouldn't be review because of split classes (5/6). [sic]</p>