

**Organizing Mathematics Instruction
Using the Comfort Groups Model (CGM):
a variation on ability grouping,
promoting student self-assessment and self-selection**

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Research Question:

How does 4th, 5th and 6th grade students' **self-selection** of math group (differentiated by pace and style) and the process involved in making the selection (the intervention) affect their **self-concept** in math and their **attitude** towards math?

Introduction:

A review of the literature reveals a myriad of factors that influence, potentially or directly, children's performance in mathematics. The list is long, and the interaction of these factors makes the task of determining how to positively affect performance a difficult and complicated one. Researchers have explored the effects of such things as math anxiety on performance, training and pedagogy of teachers, number of hours of professional development, extent of remediation offered by the school, use of manipulatives, parental involvement, gender, class size, use of technology, teacher experience, classroom practice and even television watching, to name just a few.

Factors such as motivation, self-perception, and peer influence are more subjective but, nonetheless, potentially powerful. Perhaps more than any other subject taught in school, mathematics is a lens through which students gauge their own intelligence and that of their peers. Being "good at math" often equates with being smart. Conversely, being "bad at math" often equates with being dumb. Does being perceived as "being good" or "being bad" at math motivate you to work harder or less hard at being good at math? To what extent does this "outside perception," namely, the judgment of the teacher, perpetuate or confirm or even drive self-perception of math ability and, in turn, affect math self-concept and achievement? If the teacher deems you "good at math," what effect does that have on your performance? If the teacher thinks you are "weak at math," what motivates you to try harder?

While the controversy over grouping in math, which has been raging for decades, continues, it's not at all unusual for instruction in mathematics to be given in groupings. Even when instruction is given in whole class format, often the class is broken down into smaller configurations for small group

work or problem solving. Much has been written about the virtues and pitfalls of both heterogeneous grouping and homogeneous grouping. The goal of this study is not to continue that debate but rather to explore the powerful role a teacher's judgment has on a child's math self-concept by eliminating it as a factor; therefore, for the purposes of this study, the selected format for math instruction is a variation on homogeneous grouping. However, this approach to ability grouping in elementary and middle school recognizes the benefits of traditional tracking, acknowledges its disadvantages, and offers new solutions by putting the decision-making in the hands of the students.

More specifically, the focus of this study is to explore and examine an intervention/factor, which has not received very much research attention; namely, the effect of **student self-selection** of math grouping (differentiated by pace and style) and the process involved in making that selection on 4th, 5th and 6th grade students' attitude toward the study of mathematics and their view of themselves as math learners. The teacher maintains a critical role in this process but assumes a role that would be best characterized as "guide" rather than "judge."

The intervention itself involves aspects of **metacognition**; namely, the student learns how to become aware of, reflect and evaluate his/her performance in mathematics. How do I learn best? What do I understand? In which areas do I need support?

The study is largely qualitative and utilized surveys and interviews.

Importance of the study:

Some research has suggested that **mathematics self-concept** in elementary school aged children is an important factor in determining achievement in mathematics. Even studies that disagree with the aforementioned finding suggest that increasing math self-concept can be a desirable result if accompanied by an increase in self-competence.

What is the Comfort Group Model (CGM)?

The **Comfort Group Model** allows for math groupings that are based on student needs (both academic and emotional) and self-selected by students, flexible in nature and respectful of children's ability to assess their own needs. It encourages students to take responsibility for their learning and engages them in both self-reflection and error analysis of their written work. The CGM seeks to promote a healthier self-concept in math and a positive outlook on mathematics in general.

Method

The Intervention:

- ✚ Ongoing discussions with students about Howard Gardner's **Theory of Multiple Intelligences** along with discussions, activities and exercises on **learning style differences** in general take place throughout the year but especially at the beginning of the academic year. Discussions take place to help children accept and understand the complicated factors that go into learning.
- ✚ Students learn how to evaluate themselves realistically and are given criteria for doing this. They are encouraged to see where they fit along the continuum of feeling unsure and therefore not very comfortable with the material to feeling confident and ready to move on. In short, they determine their "comfort group."
- ✚ Students are taught how to conduct their own error analyses on math homework assignments, quizzes & tests and guided to determine the "next steps" they need to take in order to improve their performance.
- ✚ Students are given a teacher-designed tool for self-assessment of performance on a math pre-test on a unit of study that lasts anywhere from 3 – 8 weeks.

Participants:

Three groups of participants were involved in this study:

- ✚ **Current 4th, 5th and 6th grade students** at the Fieldston Lower School, a division of the Ethical Culture Fieldston School, an independent school in New York City who experience the intervention
- ✚ **Students who had graduated** from Fieldston Lower, having experienced the intervention when they were in the 4th-6th grades and who are currently in grades 7-10
- ✚ **Parents** of the current 4th, 5th and 6th grade students

Procedure:

- ✚ Before the first math unit of the year is introduced, students participate in discussions & activities about multiple intelligences and learning style differences.
- ✚ In whole class setting, students engage in an initial review of related unit material taught in the previous year. For example, if the unit is a study of rational numbers, teachers would review rational number concepts presented in the previous grade.
- ✚ The review is followed by 2-3 lessons on the new math material taught at a medium pace using traditional teaching methods, again in whole class setting.
- ✚ During the review, the students engage in error analysis, considered part of the process of understanding oneself as a math learner.
- ✚ After the review, students take a teacher-designed assessment (pre-test). The assessment has both straightforward questions as well as questions that are more challenging and which require greater ability to synthesize or apply learned concepts.
- ✚ After the assessments are graded by the teacher, students get back their papers, are asked to fill out a self-assessment form and given the task of determining which group, differentiated by pace and style, best meets their particular learning style needs. The self-evaluation form guides the student through the reflection needed to make an informed decision.
- ✚ Before students fill out the self-evaluation form, the teacher(s) discuss the groupings that will be offered in detail. The language used in the descriptions is very important and is thought through, in advance, with the entire team of teachers that will be teaching the group.
- ✚ Accompanying the selections are the students' written justifications for the selection they make.

- ✚ Math teachers at the same grade level meet to review student selections. In cases where the selection is not adequately justified, students are asked to elaborate on their selection process. During this process of talking through the justification, students may elect to change their selection. This works both ways—students who select a slower paced group may select a faster paced group and students selecting a faster paced group may select a slower paced group. Apart from asking a student to justify his/her selection, all selections are honored.
- ✚ Instruction begins the next day in these self-selected “comfort groups.” Regular quizzes are given to provide the student with feedback on their selection and are used as a way for students to confirm their selection. Consistent scores below 80% prompt a student-teacher meeting about the placement and could result in a change of placement. During the first week of instruction, students may elect to change their groups based on their comfort and performance on homework, class work and quizzes. Generally, a quiz performance of 80% is considered necessary to remain in the medium or fast paced groups.
- ✚ Adjustments are made, as much as possible, in the first week. Any student who wishes to change groups after that must be willing to work with the teacher outside of class and do extra “catch-up” at home. The timing for a comfort group change is left to the individual teacher.
- ✚ At the end of the unit, students are given a posttest on the content of the unit.

How is the CGM the same as traditional ability grouping?

- The comfort groups **are** ability groups.
- Performance enters into the picture.
- Scores can, under certain circumstances, be a deciding factor.
- Scores (generally agreed to be 80%) are needed to remain in the group.

How is it different from traditional tracking?

- Students make the selection.
- It is predicated on students' understanding of their learning needs and learning style.
- The selection process occurs for each new unit; that is, 3 to 5 times in the year.
- There is greater flexibility than in most traditional tracking programs for movement up or down, especially during the first weeks of the unit and definitely from unit to unit or year to year.
 - Students who in earlier grades needed more support, have developed greater self-confidence and skill and are able to work at a faster pace.
- Student initiated movement is perhaps better received and acted upon than in a traditional model.
- The flexibility to meet the changing needs of our students is built into the model. When comfort groups by gender are called for, that need can be easily accommodated.

- There are certain units that are taught to the entire class as a whole; specifically, problem- solving units spread throughout year. Students have the opportunity to be grouped in a variety of ways and benefit directly from the exchanges that occur among all the students, regardless of their ability.
 - For example, in the 6th grade, there is a two-week unit on problem solving strategies, done with the full class (two teachers) and then followed by 2-3 days problem solving sessions at various intervals throughout the year.

Some Necessary Ingredients

- The language used to describe the groups and the way the groups function is critical. It is often challenging to find the right language and for teachers to all agree on the same language. Even after all these years, while we've come closer, we probably are all not using the same terms.
 - However, we are close to all embracing the philosophy behind the "comfort group model" and towards this end, speak to the children in the same way about the groups.

- The model needs to be developing hand in hand with the students:
 - Earlier grades have language groups (1-4) differentiated by reading/ability. Nonetheless, math is often seen as the only subject, especially by the upper elementary students, where differentiation occurs in our school
 - Children need to “own” their decision, which dictates that time must be given to preparing them to make that decision.
 - Ongoing discussions must take place to help them understand differences, differences in learning styles and preferences:
 - Because math may come more easily to you, it does not mean that you are better than anyone else.
 - We seem to accept other differences more easily and openly discuss them, without drawing the conclusion that one person is superior or inferior to another: Maggie is a great soccer player or Pedro is a good writer or Catherine knows how to get the teacher to change her mind. Why can't the same thing be true for math? Individual differences do not mean superiority or inferiority...it means people are good at different things...and Thank Goodness for that!
 - Discussions must take place to help students accept and understand all the complicated factors that go into learning. This is best accomplished when these kinds of discussion start in the early grades and then are further supported and developed in the upper elementary grades.
 - Students need to learn how to evaluate themselves realistically. This model gives them the criteria for doing this and encourages them to see where they fit along the continuum of feeling unsure and therefore not very comfortable with the material to feeling confident and ready to move on.
 - We talk a lot about pacing, the use or limited use of materials, time for review of class work and homework.
 - We emphasize that all students will be given challenges and expected to work hard.

Philosophical Rationale:

“Life can only be understood backwards; but it must be lived forwards.”

--Soren Kierkegaard (Danish Philosopher) 1813-1855

Theoretical Rationale:

○ Metacognition Theory

- Metacognition basically means thinking about the way you learn, think and process information. The better able a student is to reflect on their learning style, the more successful he or she will be. Self-knowledge...that is, knowing one's strengths and weaknesses...is an important component of metacognition. In the “Comfort Groups” model, students are asked on a regular basis to revisit their strengths and weaknesses and select a group or strategy that will best support those strength and weaknesses.

○ Adolescent Development Theory, specifically looking at:

▪ Cognitive Development:

- Concrete thinking moving towards abstract thinking
- Able to analyze looking at cause and effect
- Able to evaluate their actions, plan for the future, set goals for themselves

▪ Emotional Development:

- Seeking greater independence and eager to make their own decisions
- Able to reflect on who they are and how they are different or the same as others (self-concept—who you think you are, self-esteem—how you feel about it)

○ Motivation Theory

- There are so many factors that go into being successful in math:
 - experiences outside of school with the subject matter,
 - experiences in school with the subject matter
 - ability of prior and current teachers to instill excitement about math
 - ability of prior and current teachers to teach math
 - attention, focus, memory
 - your brain terrain or learning style
 - self-esteem, confidence, maturity
 - cognitive and emotional development
 - parental pressure and /or support
 - peer pressure and/or support
 - societal and cultural factors
 - natural talent or aptitude in math
 - attitude, willingness to work hard
 - organization, work/study habits
 - natural interest in mathematics
- A big one certainly has to do with motivation.
- Several theories under the umbrella of Motivation Theory support the comfort group model: **Cognitive Evaluation Theory or Expectancy Theory**
- Perhaps one that fits the best is **Self-Determination Theory**, research by psychologists Richard Ryan and Edward Deci:
 - The more students are involved in determining their own educational goals, the more successful they will be.
 - Psychologists Sharon Field and Alan Hoffman designed an intervention model for school settings utilizing Self-Determination Theory principles. The following quote is taken from the American Psychological Association's website www.psychologymatters.org in an article

entitled, “Increasing Student Success Through Instruction for Self-Determination”

- “According to the model, instructional activities in areas such as increasing self-awareness; improving decision-making; goal-setting and goal-attainment skills; enhancing communication and relationship skills; and developing the ability to celebrate success and learn from reflecting on experiences lead to increased student self-determination.”
- Social psychologists Aronson, Fried, and Good (2002) continued the research of social psychologist Claude Steele et al who identified a phenomenon called “stereotype threat,” in which people who think they are less able because they belong to a stereotyped group such as females or blacks, actually perform more poorly.
- From an article from the same APA website cited above, entitled “Believing You Can Get Smarter Makes You Smarter”—
 - “Thinking about intelligence as changeable and malleable, rather than stable and fixed, results in greater academic achievement, especially for people whose groups bear the burden of negative stereotypes about their intelligence.”
 - Blackwell, Dweck, and Trzesniewski (2002) replicated Aronson, Fried, and Good’s research with 7th graders in NYC:
 - After an “intelligence-is-malleable” intervention, students had “higher academic motivation, better academic behavior, and better grades in mathematics.”
 - If you consider children who believe they have inherited their parents bad math genes or who believe that boys are better at math or who suffer from negative feelings about themselves as math learners for whatever reason, this concept of malleable intelligence becomes a useful tool for improving their performance. It fits nicely with the general discussions that go on when we talk about comfort groups.

The Survey:

A survey was developed to determine the effect that the CMG has on student self-concept in math and student attitude towards the study of mathematics.

- The survey was administered to the current students in grades 4,5 and 6 during math class. Because this was completed in school, 100% of the students in these grades (132 students) participated in the survey.
- Graduates of the school currently in grades 7-10 were sent a similar survey via Survey Monkey, an online survey tool. 52 students responded.
- Parents of the current 4th, 5th and 6th grade students were also sent a survey via email, utilizing Survey Monkey. The return response was extraordinary with 90 responses coming from the families of the 132 students in grades 4-6.

Highlights from the Survey Results:

The majority of students in grades 4-6, report—

- being better able to understand who they are as math learners (64-80%)*
- having more confidence (61-73%)
- feeling in charge of their learning (52-80%)
- enjoying math more (64-76%)
- realizing that they are better at some types of math than others (64-89%)

*This is the range of percents for the various sub-groups (gender, grade, self-selected pace)

The self-reflection process was, in no way, perceived as onerous or negative for the vast majority of these students. Only one student (a 6th grade female) out of the 132 students who participated reported feeling worse about herself as a math student, with nine others “not sure,” and only one student (a 6th grade male) reported the process as uncomfortable or anxiety producing, with fifteen others “not sure.”

An interesting set of questions involved student perceptions of ability group and its perceived relationship with intelligence, and the desirability of being in the faster paced group. More boys (26%) than girls (15%) felt that it was best to be in one of the faster paced comfort groups with significantly increasing percents of students saying the same thing as their self-selected comfort group pace got slower: fast paced (24%), medium paced (38%), slow paced (44%).

Interestingly enough, however, only 2% (1 student) to 7% (3 students) said that being in the faster paced group means you are smarter than others. Equally low were the number

of students who said that being in the slower paced group means you are bad at math: the range was 2% (1 student) to 9% (3 students), with the 3 students coming from the slow paced comfort group. This attitude is confirmed by the number of students who believe that learning style and the pace at which you feel comfortable working in math, doesn't have much to do with how smart you are: 64% of males and 64% of females. 75% of 6th graders feel this way as compared to 57% of 4th graders, suggesting that with more experiences with the comfort group model, children are more willing to attribute differences in pacing to factors other than intelligence.

An overwhelming number of students, 130 of the 132 (98%), think that Fieldston Lower should continue to use the comfort group model in the 4th and 5th grades in the future. The two students who think otherwise were both from the 4th grade. An impressive number of students (50 – 68%) were interested in being interviewed about their experiences with comfort groups—the higher percentages coming from males (64%), 6th graders (66%), and students in the slow paced group (68%).

Comparing responses from the current students and the graduates revealed some interesting results. The table below shows responses to Part V dealing with attitudes. The percentage in the boxes below indicates a “yes” response.

Attitudes of current students vs. graduates:

	Current Students	Graduates
Has/did having to decide on a comfort group helped you better understand who you are as a math learner?	68.9%	51.2%
Has/did having to decide on a comfort group given you more confidence in math?	67.2%	48.8%
Has/did having to decide on a comfort group made you feel worse about yourself as a math student?	3.1%	7.0%
Has/did having to decide on a comfort group made you feel like you are in charge of your learning?	65.9%	44.2%
Does/did having to decide on a comfort group make you feel uncomfortable or anxious?	5.3%	25.6%
Does/did being in a comfort group make you enjoy math more?	69.7%	62.8%
Has/did having to decide on a comfort group made you realize that there are some topics in math that you are better at than others?	76.5%	73.8%
Would it be/have been all the same for you if your teachers made a decision about the group you should be in based on your pre-assessment and the info they know about you as a student?	12.3%	32.6%
It's best to be in one of the faster comfort groups?	20.5%	34.9%
Being in the faster paced comfort groups means you are smarter than others.	5.3%	34.9%
Being in the slower paced groups means you're bad at math.	4.5%	27.9%
Your learning style and the pace at which you feel comfortable working in math doesn't have much to do with how smart you are.	63.6%	55.8%
Do you think Fieldston Lower should continue to use the comfort group model in the 4 th and 5 th grades in the future?	98.5%	86.0%
Would you be interested in being interviewed (on videotape) about your ideas about comfort groups?	59.8%	27.9%

Highlights of Parent Survey:

How do you think comfort groups differ from traditional tracking?

77 of the 90 parents responded to this question. Overall, their responses indicated a good understanding of the comfort group model and its goals. A handful of responses accused the school of using the term “comfort groups” as merely a euphemism for traditional tracking.

What benefit, if any, does this method of grouping have for your child?

77 of the 90 parents responded to this question. Among the benefits mentioned were:

- maintains interest in math
- gives child control in managing educational career
- develops self-assessment skills
- can move fast for some topics and more slowly for others
- feels safe, helps concentration, and increases joy in the work
- instills pride in the work
- motivated to do best work
- sense of control vs. fear of label
- partners in the learning process
- minimizes stigma associated with being in a slower paced group
- fosters stronger communication, self-advocacy, and work habit skills
- develops appreciation for the learning process
- preserves or enhances self-esteem despite placement even in a slow paced group
- increases confidence
- empowers children—lets them know there are different ways to learn, no one way is the best
- eliminates some of the stress
- ability to choose and push into a new comfort zone

What disadvantage, if any, does this method of grouping have for your child?

73 of the 90 parents responded to this question. Some of the issues brought to light in this section of the survey can be disputed, but they are listed below as reported.

Among the disadvantages cited were:

- does not group solely on ability; therefore, may not ensure full benefits of ability grouping
- teachers discourage students from trying the next level; students feel tracked and its not great for those who aren't in the fastest paced group

- student can choose a group below his level because of lack of confidence or because he doesn't want to work hard
- choice becomes self-fulfilling
- disappointing for those children who don't measure up to higher expectations
- being "comfortable" in math runs contrary to the notion that children should be challenged when it comes to education
- fear of children in middle group labeling themselves as "average"
- supposedly it is up to the children but that is not always true; negatively impacted "my child's entire year"
- groups not as fluid as might be expected; long term consequences of covering less material than the faster paced group may adversely affect experience in high school
- stigma, incorrect feedback, poor choices
- students in slow group—that message is formalized into groups
- it becomes clear to children where they fall on the "totem" pole and creates challenges to self-esteem when child gets placed in slower paced math group
- slower paced groups get less specialized teachers; this is a double whammy for a child less gifted in math; the "comfort group" euphemism creates a very disturbing division among children which is the antithesis of a progressive approach
- negatively impacts self-esteem for children in the slower paced groups
- makes my child lazy
- dishonest representation of tracking—more to do with teacher's level of comfort rather than the child's and labels her for her future academic placing in middle school
- teachers end up teaching at a slower pace when children opt for faster paced group and don't belong there.
- competitive vibe and anxiety associated with it
- children in slower paced groups get teased about their placement; children in border zone get bored
- perception of "good group" and "bad group"
- need to vary who teaches what group; students start to associate fast pace with a certain teacher
- teachers put pressure on students to change groups who have no interest in moving
- sometimes students choose based on the teacher rather than the pacing

Setting the stage for this model to work:

- From 1st grade giving students the responsibility to decide if they need a second explanation or additional help
 - “Stay in the meeting area, if you’d like to hear this again.”
 - “Meet me at the back table if you’re not sure what to do.”
 - “Move to the front near the blackboard if you’d like to see this again. If not, take a seat towards the back.”

- Encourage conversations with children about differences and, in particular, learning style differences.
 - It’s great that we are all different. How boring it would be if we were all the same and good at the same things! How would the world be if it were that way?
 - Everyone’s brain is different! Brains develop in different ways and at different rates. There are differences in the way we see and hear. Therefore, we learn in different ways:
 - Some people learn best by listening
 - Some people learn best by seeing
 - Some people like to have a lot of information thrown at them quickly
 - Some people like to learn in steps
 - Some people benefit from the use of manipulatives
 - Some people need quiet to learn, while others do fine in an environment where there are a lot of things going on at the same time (group work)
 - Some things come easier to us than others.
 - “You’re really good at art and I’m really good at spelling.”
 - “How do I learn best?”
 - Knowing how you learn = learning better
 - You can be successful if you desire it enough (you have the motivation), if you are willing to work hard, if you practice a lot, and if the method of instruction coincides with your style of learning.
 - It’s okay to notice these differences but not okay to make others feel badly about these differences:
 - “That’s easy!” is not allowed
 - “I did that already,” is not allowed
 - “What! You’re still on that sheet?”
 - “Oh! What we’re doing in math is so hard!!”

- Teach children how to diagnose their strengths and difficulties in math:
 - I understand the concept of multiplication, and I understand the procedure but I don’t know my multiplication facts. That’s what messes me up!

- I'm really good at geometry but I have a harder time understanding fractions. I do better if I use the materials.
- Encourage children to take responsibility for their learning
 - I need more practice finding the perimeter and area of shapes
 - I need to come in early or stay after school to see the teacher about today's lesson
 - I need to sit away from Joey. He distracts me.

Other Factors:

- ✚ Type of math program
 - Progressive vs. traditional
 - Constructivist approach
- ✚ Values and culture of the school
 - Does the school culture value individual differences?
 - Does the school culture encourage student self-reflection?
 - Does the school culture encourage conversations about personal choices, different learning styles, peer pressure, and decision-making?
- ✚ Strength of the teachers
 - Are the people teaching math well enough prepared?
- ✚ Cohesiveness of the program
 - Is the program coordinated? Do the teachers in one grade know what the teachers are doing in the next? Do teachers use a similar approach?
- ✚ Communication among the teachers
 - Are there opportunities for teachers to meet, talk, and plan?
- ✚ The Parent Factor
 - Need to educate and inform parents about the model
 - The survey prompted a lot of interest in what is going on in the classroom.

Conclusions:

Part V of the Survey deals solely with attitudes and illustrates the real benefits of self-selection through the comfort group model and gets to the heart of the matter—how do students feel about themselves as math learners? How aware are they of their learning needs? their learning style? What role has the comfort group model process had in shaping these understandings?

Metacognition can be thought of as the ability to look at one's past behavior/performance "from the outside looking in," allowing the individual to be cognizant of, analyze, and evaluate that behavior or performance with the hope of improving it. More often than not, students are used to their teachers or coaches making these assessments for them, and it is not often the case that they are asked to do this for themselves. Through the process inherent in the comfort group model for selecting a group, the individual student is required to think about, reflect, and analyze certain aspects of their past performance in order to determine something about the future. Students must answer such questions as: How did I feel during the review? Did I participate? Did I feel comfortable? How independently was I able to complete homework? classwork? Did the pace of the review seem too fast or too slow for me? Am I ready to move on? Do I need more review?

The effect of having to go through this process several times a year gives the individual student the opportunity to better understand her/himself as a math learner and allows her/him to build a mental construct whereby s/he synthesizes her/his awareness of experiences learning math over an extended period of time and under a variety of circumstances.

The general trends in responding to the attitude questions are the same in both the current and graduate groups with the exception of a few areas, which are discussed in the full report. For each of the items listed below, the current student group responded positively in higher numbers than the graduate group, possibly indicating an improvement in the way the model is executed. The best that can be said for sure is that the two groups replied in similar ways, responding yes in significant numbers to the following questions:

- Has/did having to decide on a comfort group helped you better understand who you are as a math learner? (68.9% current vs. 51.2% graduates)
- Has/did having to decide on a comfort group given you more confidence in math? (67.2% current vs. 48.8% graduates)
- Has/did having to decide on a comfort group made/make you feel like you are in charge of your learning? (65.9% current vs. 44.2% graduates)
- Does/did being in a comfort group make you enjoy math more? (68.7% current vs. 62.8% graduates)
- Has/did having to decide on a comfort group made you realize that there are some topics in math that you are better at than others? (76.5% current vs. 73.8% graduates)
- Do you think Fieldston Lower should continue to use the comfort group model in the 4th and 5th grades in the future? (98.5% current vs. 86.0% graduates)

For our current students, we know they have a better understanding of themselves as math learners, feel more confident in math, feel in charge of their learning, enjoy math more, recognize that there are certain topics in math that they are better at than others, and would like to see Fieldston Lower continue with the comfort group model in the future.

While the majority of students in both categories agreed that *Your learning style and the pace at which you feel comfortable working in math doesn't have much to do with how smart you are*, (63.6% current vs. 55.8% graduates), nearly 1/5 of our current students approximately 1/3 of the graduates said *it's best to be in one of the faster paced groups*. Being in a faster group is still alluring to many.

Possibly significant differences between the groups showed up in the following items:

- Does/did having to decide on a comfort group for math make you feel uncomfortable or anxious? (5.3% of current vs. 25.6% of graduates)
- Would it be all the same to you if your teacher made a decision about the group you should be in based on your pre-assessment and the

information they know about you as a student? (12/3% current vs. 32.6% graduates)

The first, perhaps, indicates that we have gotten better at establishing a relaxed, nurturing environment in which students make these decisions.

The second, as mentioned in the full report, could be attributed to the poor wording of this item or to the fact that the graduate students, currently in a system where these decisions are made for them, care less about making these decisions on their own.

Most encouraging, though, are the differences in the responses of the two groups to questions regarding the relationship between intelligence and math placement:

- Being in the faster paced comfort groups means you are smarter than others. (5.3% current vs. 34.9% graduates)
- Being in the slower paced groups means you're bad at math. (4.5% current vs. 27.9% graduates)

These responses imply, as suggested in the other sections of the full report, that we are making headway in having children accept differences.

While the results of this survey were encouraging, challenges remain.

Peer pressure still exists and students sometimes feel pressure to perform in order to stay in the group they are in. While very few in number, some students are tempted to select a group based on where their friends are rather than based on their needs.

The interviews with 6th graders indicated that, once in their working groups, students in the slower paced groupings are happy to be there and recognize that the pace and style of instruction works best for them. Nonetheless, there is need to continually work to overcome the negative social and self-esteem effects of being in a slower math group. While it is not so much an issue of teasing, more often it is the “innocent” comment that gets made that can hurt people’s feelings. Coordination and communication among teachers needs regular attention, and, as with any kind of math program, smart teachers--

qualified, energetic, sensitive to the issues of grouping, creative, and dedicated are sometimes hard to find.

Consideration is being given to the possibility of including the administration of the Murphy-Meisgeier Type Indicator for Children (MMTIC) as a way to concretize different learning styles & preferences and further validate students' understanding of themselves as math learners.

Further Research:

- ✚ Before looking at the student self-selection requests, it would be interesting to have the teachers of these students place them in the various groups, based on their performance both on the pretest and during the review. While the list would not be acted upon, it could be used at the end of the process to compare teacher judgment versus student judgment and posttest results.
- ✚ While we were unable to research the effect of the CGM on math achievement, we believe it to be an omission, which needs to be included in future studies of this kind.

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