

Newsletter of the Metropolitan Mathematics Club of Chicago Volume L No. 4 Dec. 2020/Jan. 2021

## Some Great Middle and High School Mathematics Lessons Worthy of More Attention

## January Speaker Zalman Usiskin



This picture was taken before the pandemic.

**Date/Time:** Friday, January 22, at 7:00 p.m.

**Location:** Zoom online platform

**Registration:** Register online at mmcchicago.org

**Cost:** No charge; donations welcome via Zelle at zelle4mmc@gmail.com Some lessons are designed to introduce concepts, some to polish or brighten them, and some to summarize or review. As educators, how do we know which lessons are appropriate for serving a specific purpose, and how do we know when to incorporate them into our instruction? In this talk, MMC's own Zalman Usiskin will describe some lessons of each of these types that involve what he considers to be important concepts, that are etched in his mind as particularly memorable, and that are deserving of more attention than they are usually given. The topics range from 6<sup>th</sup> grade through 12<sup>th</sup> grade.

Zalman Usiskin is a Professor Emeritus of Education at the University of Chicago. He taught mathematics full time for many years at Niles West High School before starting his doctoral work. While a faculty member at the University of Chicago, he taught year-long courses at the University of Chicago Laboratory School for four years and full single-year courses at Addison Trail, Proviso West, Rich South, and Glenbrook South High Schools. He has been involved with the University of Chicago School Mathematics Project from its inception in 1983 and has been its overall director since 1987. He has authored, co-authored, edited, or co-edited 44 books and over 150 articles in mathematics and mathematics education. In 2014, NCTM published a book of 38 of his papers, the first time that the organization published a collection of writings of one individual.

Zalman was a member of the Board of Directors of the Men's Mathematics Club of Chicago and Vicinity in 1970-73 when the club voted to include women and then changed its name to the Metropolitan Mathematics Club of Chicago. (There was an active Women's Mathematics Club of Chicago at the time, but within a few years it disbanded.) He received a Distinguished Service award from MMC in 1984 and Lifetime Achievement awards from NCSM in 1994, NCTM in 2001, and ICTM in 2010. Zalman's wife Karen was the first woman MMC president - they became engaged during her presidency. They have now been married for 40 years.

### **Points From the Interior** By Serg Cvetkovic

The holiday season is upon us! Even though this season is significantly different due to the (necessary) social distancing and other precautionary measures, I am still engaging in the lifelong tradition of writing a letter to Ded *Moroz* (like any good kid with Slavic heritage is expected to do). Instead of the usual meat pies, stuffed cabbage, and plum brandy, this year I am asking him to bring me what many a math teacher wants... autonomy to teach how I best see fit. In other words, I want my school and district administration to give me the freedom to be my own regression line. In my previous *Points from the Interior*, I treated the audience to a rant about all the bureaucratic red tape and beefed up administration that gets in our way when teaching, so I will spare you all of that. Consider this an extension of that, however. I don't know about many of you, but my experience as a math educator goes something like this...1) We have common planning meetings, so we can all synchronize our teaching, covering the same topics and giving the same assessments on the same day. 2) We rush through a topic and give the assessment, with a handful of kids grasping the topic, while the majority do not know what just whizzed past them (e.g., Ever try teaching a two-day lesson on coordinate geometry to students that are still trying to digest the concept of area?). 3) Most of the students do poorly on the assessment and the administration yells at us. 4) We move on to the next, more difficult topic. I desperately, more than anything, want to break that cycle. The freedom to meet my students where they are and allow them to build their skills and knowledge at their own pace, without stressing out about getting in trouble over "not following the script" would be the greatest gift of all. Yes, even better than Tickle Me Elmo or a Red Ryder BB Gun. Without further ado, here we go:

Dear Ded Moroz, for this year's holiday, in addition to having COVID, violence, and inequality completely eradicated, I would like the gift of freedom to give my students what they need and to teach them how I best see fit. Unlike the bureaucrats, I am there with my students each day. I see their perseverance as well as their struggles, in front of my own eyes. If they are not prepared to tackle pre-calculus, I should be able to go back and build their algebra skills. If they are not ready to dive headfirst into algebra, I feel a sense of obligation to brush them up on arithmetic they may have missed. Bottom line, I want my students to grow mathematically, but before they grow, the seeds of mathematical maturity and confidence need to be planted. In order to plant those seeds, I need the permission to tend to the garden, to meet my students where they are, and to nurture their growth, as they gradually become confident problem solvers. I should not have to feel guilty about showing up to a department meeting without a pile of (mostly subpar) graded common assessments or not being ready to start the unit on conic sections on Thursday. I chose this profession to teach a subject I love and help build the future. Please give me the freedom to do so. Signed, a dedicated but frustrated math teacher.

Happy Holidays!

## Are your MMC communications being sent to your school address while you are teaching remotely?

You can update your membership address by contacting Mary Wiltjer at mwiltjer@glenbrook225.org.



### **Opening the Mathematical Gates and Moving Toward Inclusivity and Belonging** By Carrie Fraher

When I logged into Zoom for this event, the chat was already buzzing with people announcing their locations and welcoming others. People from all over the US and Canada were checking in, excited to hear from Marian and being personally welcomed by her. The room took on a very warm feeling, and there was some excitement about the talk ahead.



Marian started the session with acknowledgments of the privileges, obstacles and challenges that we all bring to the talk. This helped us address context and think about the lens through which we would see the material. She seemed honored that 100 people would choose to listen to her on a Friday night during a difficult time and encouraged participants to take care of themselves.

In the first portion, Marian focused on setting agreements and intentions. Participants agreed to engage as they could and lean into discomfort. Educators need to challenge themselves and be honest to take risks. These risks may not bring closure, but we need to take them anyway. What are we ready to undo so we can start to create? Math educators say we believe in productive struggle and risk taking. Are we ready to plan our actions? We were asked to examine why we were here. What is our ideal outcome? What will be your next action step?

Next, Marian shared her own story. After working in education for years, joining Twitter helped her find a community of educators that felt like a family. She felt truly accepted and ready to step into a larger role, which brought her to NCTM 2019 in San Diego. Meeting so many colleagues in person left her excited and ready to ask some tough questions about race and mathematics education in Chicago at NCTM 2020. She commented that our fear of talking about race in this country is dangerous. Sadly, NCTM Chicago did not happen in person during 2020, but the excitement around her talk followed her to a virtual talk during the NCTM 100 Days Event.

Marian shared the book *Ghosts in the Schoolyard – Racism and School Closings on Chicago's South Side* by Eve Ewing. The text examines systemic racism in Chicago schools and neighborhoods. The closing of so many neighborhood schools put an obstacle in the path of black people working to build successful lives. Marian confessed that she is passionate about being a teacher, so she can see students who look like her have success in education and life. This bridged to a story about Robert P. Moses, author of *Radical Equation – Civil Rights from Mississippi to the Algebra Project*. Moses sees that mathematical and scientific literacy is a gateway to full citizenship in society. Students of color are not getting equal opportunities to take algebra in middle school. He encountered this when he advocated for his own child to be able to take algebra. After being denied, he taught her algebra himself at home. Her success led to him being an instructor for several students at her school and finally developing The Algebra Project.

The experience of having to fight for entry to an algebra class is an experience that Marian and her husband share. Their parents fought for them to have entry into higher levels of education. The chat livened up again with this revelation as participants shared stories of not being allowed algebra for themselves or their children. This gate of early algebra study has a ripple effect, which can leave students years behind their peers. Moses explained this in terms of premise, obstacle, gate. Premise: If we can teach algebra to students in their middle school years, then we should do it. Obstacle: Do you think your child should do algebra? Gate: Do you think every child should do algebra? We were encouraged to look for the gates in our own schools and think about who is being kept out.

Dingle explored two educational systems: Chicago Public Schools and Howard County, Maryland. In CPS, the 2018 PARCC data shows that taking Algebra in 7<sup>th</sup> or 8<sup>th</sup> grade is a crucial factor in meeting or exceeding the standards. The two largest racial groups, Black and Hispanic, are taking algebra at a lower rate than Asian or White students. In Howard County, Maryland, Dingle examined the practice of sorting students into stratified groups in the 3<sup>rd</sup> grade and then further sorting each year until some students were 4-5 years ahead of their peers. She cautioned that policies can act as gatekeepers if we don't examine the results.

## **December Talk Summary (cont.)**

## CPS PARCC Grade 7-8 Tracks, 2018 Who Makes It Through the Gate?

Race	# 7 <sup>th</sup> Gen Students	# 7 <sup>th</sup> Alg 1 Students	% 7 <sup>th</sup> Alg 1 of total 7 <sup>th</sup> Students	# 8 <sup>th</sup> Gen Students	# 8 <sup>th</sup> Alg 1 Students	% 8 <sup>th</sup> Alg 1 of total 8th Students
ALL	24236	238	100	21963	1581	100
Amer Ind	62	-	0	64	-	0
Asian	942	36	0.1	788	197	0.8
Black	8527	44	0.2	8152	300	1.3
Pac Isl	65	-	0	29	-	0
Hispanic	12173	41	0.2	11297	600	2.6
White	2261	103	0.4	1465	419	1.8
Multi	201	-	0	168	58	0.2
Unknown	-	-	0	-	-	0

(From Dingle's presentation, Opening the Mathematical Gates and Moving Toward Inclusivity and Belonging, to MMC on December 4, 2020)

After exploring the problem of gates through beautiful examples including the documentary, *Dance Dreams* with Debbie Allen, it was time for a call to action. Dingle accentuated that everyone must work in their own role to tear down gates. Everyone has to push at the same time from their own positions, classrooms, legislation and policies. Examine the structures from the inside to find the gates. Understand who keeps them and why. Focus the revolution on the students who need it the most. She also called for teachers to be treated as full professionals, experts in their field. I highly encourage you to follow her on Twitter @DingleTeach. She and the passionate community that attended this talk are sure to inspire you even in this uncertain time.

# Follow MMC on Social Media!



# MMC Scholarship for High School Seniors

The Metropolitan Mathematics Club of Chicago is offering a \$2,500 scholarship for a high school senior who will pursue a career in the teaching of mathematics. In addition, up to two Filliman Scholarships may be awarded for the same amount (funded by a gift from the Filliman estate). The selected students will be honored at the MMC meeting in May.

A selection committee of MMC members appointed by the Board of Directors will determine the scholarship awards. To be eligible, an applicant must be sponsored by a current member of MMC, submit the application, submit a transcript, request a letter of recommendation from a mathematics teacher, and respond to the prompts in point E below. All materials must be received by March 5, 2021. Feel free to email your submissions. You will receive a reply, so you know that it is being considered. The committee will evaluate applications and will make a recommendation to the Board of Directors as to the awarding of the scholarship.

The guidelines used for selection shall be:

A. Demonstration of overall academic scholarship with an inclusion of at least eight semesters of college preparatory mathematics (with a minimum cumulative grade point average of 3.0, where A = 4)

B. A statement of the intention to pursue a career in mathematics teaching

C. Indication of participation in extracurricular activities, especially those that may have a positive influence on a teaching career

D. A letter of recommendation from a math teacher who is familiar with the applicant's academic performance and his or her potential as a mathematics teacher (The teacher must be an MMC member.)

E. A short response from the candidate (1-2 paragraphs) to each of the following prompts:

- a. What qualities do you possess that will help you in a teaching career?
- b. Describe a teacher who has had an impact on your education.
- c. Was there a time when you struggled with a concept in a math (or other) class? What did you do?
- d. What was your favorite math class? Why?
- e. Describe your favorite math problem. What makes it so great?
- f. What excites you about mathematics?
- g. Why do you want to teach mathematics? This response may be longer than the others if necessary.

### In addition to the application form (at mmcchicago.org), applicants must also send:

- 1. A letter of recommendation from a mathematics teacher, preferably not sent through the applicant\*
- 2. A current transcript for seven semesters of high school\*
- 3. Responses to the prompts in point E above

\*Letters of recommendation and transcripts may be sent by separate mail or e-mail.

Send to: Carrie Fraher Glenbrook South High School 4000 West Lake Avenue Glenview, IL 60026 (cfraher@glenbrook225.org)



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## **Metropolitan Mathematics** Club of Chicago Affiliate of ICTM & NCTM

## **MMC Virtual Conference**

### given by teachers for teachers

## Saturday, February 13, 2021

8:30 a.m. - 12:10 p.m.

**OPTIONAL POST-SESSION DISCUSSION** 12:10 - 1:10 p.m.

Free to Everyone (Donations accepted for future MMC Professional Development through zelle4mmc@gmail.com)

Professional Development Hours/CPDU Credit Available

**Registration Information Coming Soon--**Check the MMC website (mmcchicago.org) for details!

Points & Angles

### November Board Notes By Beth Ann Ball

The MMC Board of Directors met on Tuesday, November 17, 2020, at 7:00 p.m. via Zoom.

The Board heard a report about the upcoming virtual MMC Conference on February 13, 2021. There will be a post session for educators to network and debrief.

Once again, the Filliman family is graciously offering a scholarship, in addition to MMC, for high school seniors pursuing a career teaching mathematics.

Without the opportunity for people to donate to MMC in person at dinner meetings, a discussion was held about ways to encourage donations to the speaker fund and to the scholarship fund.

Because the spring meetings will also be virtual, the ballots for the MMC elections will need to be mailed in.

The next scheduled MMC Board meeting will be on Thursday, February 4, 2021, at 7:00 p.m. via Zoom. MMC members are welcome to attend any board meeting. Anyone interested in attending the next board meeting, please contact President Serg Cvetkovic at scvetkovic@cps.edu for a link to the meeting.

### Is your membership current? Check your mailing label to see when your membership expires. You can renew by mail with the form below or renew in person at the next dinner meeting.

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direct link to each issue of <u>Points &amp; Angles</u> when it is posted on the web site, often before paper copies are mailed. You will no longer receive <u>Points &amp; Angles</u> by mail.	□2 years (\$65) □1 <sup>st</sup> yr teacher <sup>*</sup> , 1 yr (\$2	22)
Electronic-Only Membership	□3 years (\$90) □retired, 1 yr (\$28)	Of
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## **Upcoming Events**

Fri., Jan. 22	Zalman Usiskin	Some Great Middle and High School Mathematics Lessons Worthy of More Attention (via Zoom)
Sat., Feb. 13	Multiple Sessions	<b>MMC Virtual Conference</b> (via Zoom)
Fri., Mar. 5	Tom Reardon	<b>Climate Change: Creatively Use Good Mathematics to Model the</b> <b>Reality</b> (subject to change)
Fri., May 14	Jackie Palmquist	<b>5 Surprising Benefits of Number Talks in Secondary Math</b> <b>Classrooms</b> (subject to change)

Send upcoming event items to sburnett\_308@yahoo.com no later than the date of the MMC dinner meeting preceding the issue in which the item should appear. All items are subject to editing.

Your membership renewal date appears in the upper right corner of the label



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