Using Tools of Reflection, Pedagogy, and Creative Insubordination to Rehumanize Math Education

Katie Westby, M.Ed.
(she, her, hers)
@Katie_Westby
westby.katie@gmail.com
katiewestby.com
Teacher of Mathematics
Brattleboro Union High School
Brattleboro, VT

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1

Disclaimer: I am not an expert:

- Axiom of the existence of expertise in the practice of rehumanizing math ed implies a hierarchical and colonizing view of knowledge, which is counter to the paradigm of rehumanization
- We all have something to offer **AND** to receive in this conversation

*We're **all** learning **and** growing*

2

The Educational System in Which We Work Predominantly:

- Seeks to perpetuate a poverty class
- Sorts children into sociopolitical hierarchical groups each associated with different levels of "deservedness" and competence
- Standardizes and decontextualizes humanity at macro and micro levels
- Expects more than is physically possible
- Prioritizes ableist, white, middle/upper class, patriarchal, English laguage, heterosexual, views of intelligence, thinking, behaviors, and success

3

Me, My Privileges, and Subordinations…

- White, middle class, queer, female w/ invisible disabilities incl dyslexia & ad/hd
- Childhood
  - Born Washington Heights
  - Grew up at the end of the height of desegregation in U.S. schools in a diverse, middle-class NYC suburb that was one of the first towns to voluntarily integrate it's schools
  - Graduated high school in a wealthy, white NYC suburb
- College drop-out (started at Carleton College, attended about 8 colleges)
  - A.S. Engineering Science and A.S Natural Science & Mathematics Gateway Comm Coll
  - B.S. Biology / Psychology Charter Oak State College
  - M.Ed. Teaching Students with Moderate Disabilities – Lesley University
- I now live where I used to vacation (2nd home when I was in college)
- Teaching K-12 for 10 years, started in Special Education

4

"I've come to a frightening conclusion that I am the decisive element in the classroom. It's my personal approach that creates the climate. It's my daily mood that makes the weather. As a teacher, I possess the power to make a child's life miserable or joyous. I can be a tool of torture or an instrument of inspiration. I can humiliate or heal. In all situations, it is my response that decides whether a crisis will be escalated or de-escalated and a child humanized or dehumanized."

–Haim Ginot Between Teacher and Child, 1972

We need to remember to actively facilitate the healing of our students, especially at the secondary levels. Many of our students come to us with the scars of an educational system built to perpetuate a poverty class of which they are expected to be a part. Their humanity has been routinely reduced to one-dimensional labels and basic quantitative measures.

I must admit, when it comes to these aspects of my work this year, I have done more failing than succeeding. But, as I tell my students on the hill: tap your head, pinch your arm, are you still alive? [Yes] Then you're not done, keep learning and getting better.

5

So, I continue to ask…

6

How might we facilitate equitable, joyous, inspirational mathematics learning environments that foster students' healing, acknowledge and celebrate their unique and complex humanity, and help them view themselves as capable learners and doers of mathematics who can read and write the world mathematically?

7

Where We're Going

Some Tools I Use to Do the Work

- Goals & Reflection
- Designing groupwork
- Feedback
- Creative Insubordination

Synthesizing

- How these come together in my practice
- How you might use them in your own practice

Q & A

- Your questions for me
- My questions of you

8

Regular Reflection

- Know yourself
  - What are your triggers
  - What are your biases
  - What are your basic assumptions
- Regular professional reflection
  - Daily
  - Weekly
  - Quarterly

9

Knowing Yourself: An Example

- I wasn't calling on a particular student
- Thought about why
  - Student would make a face and sound that bothered me
- Used my (paper) gradebook to record when I called on students
  - Over the course of a week, every student responded to a question or discussed their reasoning at least twice
- After a few weeks, I was no longer reacting to the behavior in the same way, and after about a month, he was no longer exhibiting the behavior

10

Goals & Reflection

- Share it with whomever YOU want
- Or don't share it
- Make it work for you so that you provide your students with greater equity, and you're able to achieve your craft in a manner in which you use your power to facilitate joy, inspiration, healing, and humanization

11

My Goals: 2018 - 2019

- During the 2018-2019 academic year, I will collaborate more with special educators and families: (a) for AY Algebra, I will email families once a unit and hold 1 math night, (b) for AP Calc, I will email families at the beginning, middle, and just before the AP exam, and (c) for all classes, I will email case managers at least once a unit (as appropriate - some students barely interact with their case managers) (Dom – AC)
- During the 2018 - 2019 academic year, I will, for each unit, clearly list the learning targets and, at least once per unit, I will provide ungraded feedback that includes comments and questioning prompts to develop students' thinking. (Dom ACH & AC)
- During the 2018 - 2019 academic year, I will use discourse-heavy pedagogies at least once a unit in algebra and at least once every two units in calculus, and will navigate student identities and socio-cultural power within the structure of learning based in discourse in such a way as to facilitate all students' development of positive identities as doers of mathematics who can read and write the world mathematically in a safe environment. (Crit – Id & Pwr)
- During the 2018-2019 academic year, I will develop my leadership capacity with an eye toward (a) being a part of increasing equity in math ed in Vermont, and (b) using communication strategies that facilitate safety in "confrontation" and work toward naming and solving problems. (All)

12

Daily Reflection: 5 Questions Before Leaving

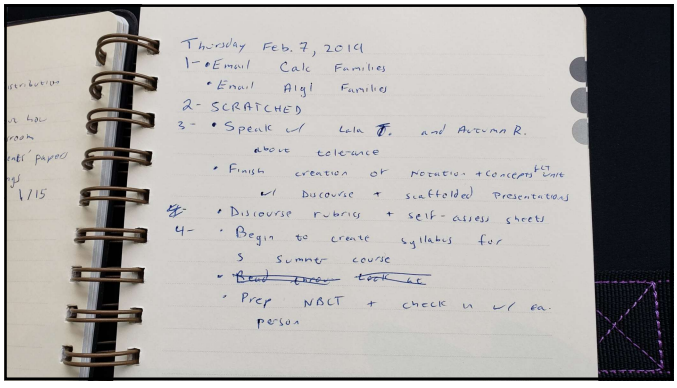
- What is one thing that went well?
- What is one thing you learned?
- Mirror test: Did you do right by your students?
- Mirror test: Did you do right by your self?
- Why will you come back tomorrow?

13

Weekly Reflection

- Take an hour before work
- Goals reflection
  - Did I achieve previous week's sub-goals
  - Set next week's sub-goals, and enter into ToDoits
- The teacher I am reflection
  - Who have I been as a teacher this week?
  - Does this match who I want to be as a teacher?
  - What will I do to close the gap next week?
- Sub-goals and closing the gap goals go on a sheet of paper that then gets put on my desk

14



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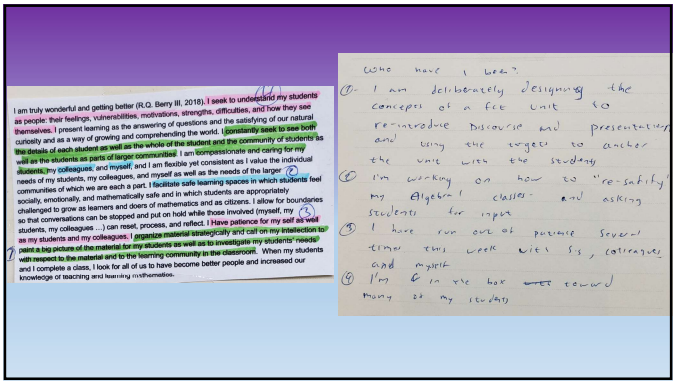

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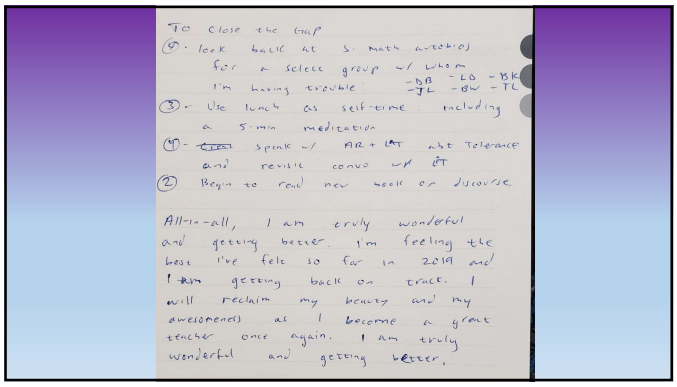
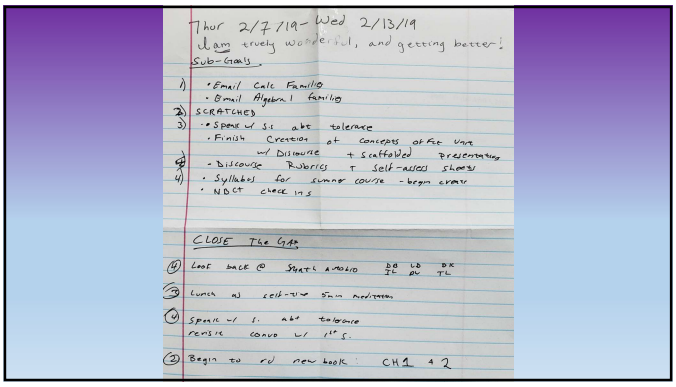

To close the Gap
(1) - look back at S. math creations for a select group w/ whom I'm having trouble - DB - LD - BK - JL - BW - TL
(3) - Use lunch as self-time including a 5-min meditation
(4) - ~~CHECK~~ Speak w/ AR + LAT abt Tolerance and revisit convo w/ LAT
(2) Begin to read new book on discourse
All-in-all, I am truly wonderful and getting better. I'm feeling the best I've felt so far in 2019 and I am getting back on track. I will reclaim my beauty and my awesomeness as I become a great teacher once again. I am truly wonderful and getting better.

17


Thur 2/7/19 - Wed 2/13/19
I am truly wonderful, and getting better!
Sub-Goals
1) • Email Cate Family
• Email Algebra I family
2) SCRATCHED
3) • Speak w/ S.S. abt tolerance
• Finish Creation of Concepts of Fct Unit w/ Discourse + Scaffolded Presentation
4) - Discourse Rubrics + Self-assess sheets
4) • Syllabus for summer course - begin create
• NBCT check ins
CLOSE The Gap
(1) Look back @ Student Answers DB LD BK JL BW TL
(3) Lunch as self-time 5min meditation
(4) Speak w/ S. abt tolerance revisit convo w/ LAT S.
(2) Begin to rd new book: CH 1 & 2

18

Semester Reflection

- Students complete course evaluations
- I read over evals and reflect on their feedback
- I create a plan for any changes
- I reflect on my progress toward my goals
  - Did I meet my benchmarks?
  - How well have I been designing and sticking to weekly sub-goals?
  - Do I need to make any changes?

19

Groupwork: Preparation

- This year's group of students
- Dealing with peer behaviors
  - Key Word
  - State the behavior
  - Make a specific, positive request
  - Practiced with scenarios, went around the circle having students phrase the statements
- Broken Circles Activity to build awareness of self as member of community
- Rainbow logic Activity to build communication of deductive thinking and reasoning
- Critical to continue to follow-up

20

Some Examples of Prep Dealing with Peers

1. You're eating dinner, some people have finished, but you're still eating. Someone at the table begins to clear plates, and takes your dish that has your food on it.
2. A person interrupts you constantly when you are talking
3. Two members of a group are holding all the materials and the third can't see anything
4. One person is shooting paper wads at someone in another group and talking to members of the other group
5. One member in your group is doing all the building on a project. Every time you try to make a suggestion you are ignored. When you pick something up to try to help, it is taken away from you.
6. A student across the room from you is talking loudly with a peer when you are trying to work and you are having trouble getting your work done.
7. Every time the teacher looks away, another student makes faces at you.
8. Someone is making loud noises with their chair
9. You just tidied the supply table and a student goes over, takes a pencil and leaves a bunch of other pencils on the table in front of where they belong.
10. The teacher asked you to move desks into a certain order, you do and then another student moves them back.
11. All the other members in your group are actively discussing the questions for your activity. You would like to say something, too, but every time they ask you for your opinion, they move on to someone else before you've had a chance to put your thoughts into words.
12. One member of your group always gets good grades on all of their regular class work but in the group they never contribute. You suspect that they know the way to solve the problem you're all working on.

21

Groupwork: Maintenance

- Poster – Sharing your Ideas
  - 1. Say your own ideas.
  - 2. Listen to others: give everyone a chance to talk.
  - 3. Ask others for their ideas.
  - 4. Give reasons for your ideas and discuss many different ideas
- Poster – Is Everyone Being Heard
  - 1. Is everyone talking?
  - 2. Are you listening to each other?
  - 3. Are you asking questions? What could you ask to find out someone's ideas?
  - 4. Are you giving reasons for ideas and getting out different ideas? What could you ask if you wanted to find out someone's reason for a suggestion?
- Reflection at end of each group activity: self and group

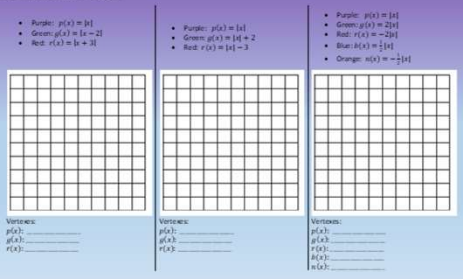
22

Groupwork: Example

Transforming Functions (Purple): Notes 2

Habits of Work

For each group of functions: use Desmos to graph the functions, then sketch the graphs and identify the vertex of each function on the same grid below, using the color indicated for each function, then in your groups discuss your responses to the questions on the next page, write up a group answer to the three questions that you will submit for HOW credit.



23

Example Continued

Transforming Functions (Purple): Reflect on Initial Learning

Habits of Work Grade: Work Completion, Behavior, and Participation

Summarize what you learned/think you learned/sort of remember/kinda' recall … from the three group explorations and Quizlet we've done over the last three days. In your summary, answer the questions below. You may answer them all together or one at a time, you may write, draw pictures, type, speak, act, however you feel you will be able to most accurately demonstrate your responses. You must use all of the words/phrases/letters listed below.

Vertex	Reflection	Translation	Quadratic
Absolute Value	Exponential	a	h
k	Negative	Positive	
Stretch	Shrink	Closer to y-axis	Away from y-axis

1. How are the graphs of $f(x) = x^2$; $g(x) = |x|$; $h(x) = 2^x$ similar and how are they different
2. What changed and what remained the same when we added or subtracted something to x in f, g, and h?
3. What changed and what remained the same when we added or subtracted something to x to the whole function f, g, and h?
4. What changed and what remained the same when we multiplied something to x in f, g, and h?
5. How was working in groups? What about it helped you learn, what kept you from learning more?

24

Creative Insubordination

- Press for explanation
- Counter with evidence
- Use the master's tools
- Seek allies
- **Turn a rational issue into a moral one**
- **Fly under the radar**

Gutiérrez (2016)

25

Rational to Moral: An Example

The situation

- We were told to modify a class for students who need modifications

My Response

- I tried to get out of the meeting
- Asked to see what students we needed to modify for
- Suggestions
  - When we change what we're teaching the students know that and they internalize the message that we think they're not good enough
  - We are derelict in our duty as educators when we do not provide students opportunities to access and engage with the mathematics

26

Deliberate Decisions

Situation

- Our job is impossible:

Response

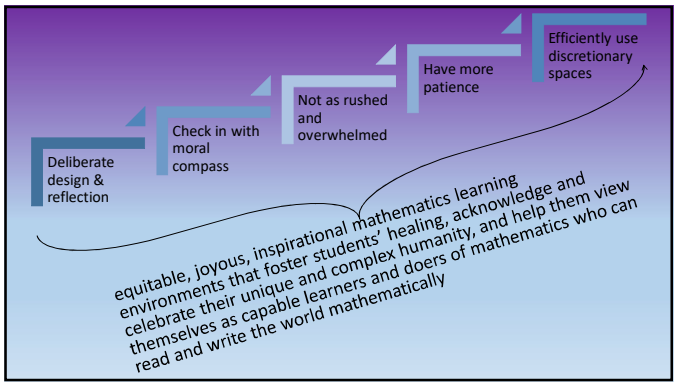
- Part of my weekly reflection will be to look at the requirements of the week and deliberately decide on priority levels

27

Synthesizing These 4 Tools

- The check in with "I am truly wonderful and getting better" forces me to find things I've done well
- Working with creative insubordination has allowed me a space to feel that I am holding true to myself

28



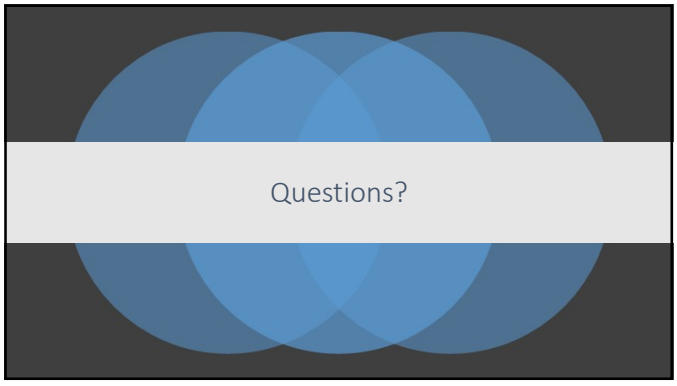
29

Turn & Talk

4:00

- Considering your classes now, what is one thing you might implement on Monday?
  - How?
  - Why?
- What difficulties do you anticipate implementing it given your situation?
- What do you anticipate would be relatively easy about implementing it?

30



31

Works Cited

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32

References and Influencers

Throughout my career, I've taken bits and pieces of learning that I've incorporated into my practice, some of which was presented here. I have realized I am unable to attribute everyone adequately, or even know where each idea or change of an idea came from, so I want to thank the following individuals, and the many more whose names I have forgotten but whose wisdom lives on in my work, for their influence on my career through their publications, presentations, courses, discussions, podcasts, or twitter chats:

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33