DISRUPTIVE MATH

CHANGING THE STATUS QUO
RETHINKING MATH EDUCATION

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Racine Unified School District
MATH EDUCATION
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WHAT DOES IT MEAN?

The rigor of the Common Core can no longer be taught in the same manner. K-12 Math education has shifted to problem solving and thinking. Computation alone is not the focus, mathematical thinking is.

Disruptive Education- Work by Clayton Christensen, 2008
VARIATIONS ON A THEME

SCHOOL/DISTRICT

Adapted from Richard DuFour
The Power of Professional Learning Communities, 2007
RIGOR & RELEVANCE

To meet the level of depth in the CCSS and Personalize instruction we have embarked on a new path.

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<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Students gather and store bits of knowledge and information. Students are primarily expected to remember or understand this knowledge.</td>
<td>Students use acquired knowledge to solve problems, design solutions, and complete work. The highest level of application is to apply knowledge to new and unpredictable situations.</td>
<td>Students extend and refine their acquired knowledge to be able to use that knowledge automatically and routinely to analyze and solve problems and create solutions.</td>
<td>Students have the competence to think in complex ways.</td>
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OUR JOURNEY

Our basic beliefs about teaching and learning center on meeting students’ learning needs by changing the status quo. We can no longer do the same thing in the same way.
A MOVEMENT

https://www.youtube.com/watch?v=RXMnDG3QzxE
GREAT LEADERS PRACTICE BALANCING TRUST AND AUTONOMY WHILE PROVIDING STRONG MENTORSHIP. 

GEORGE COUROS, 2015
WHY?

When we truly asked WHY? We began to understand our math data more clearly.

Our critical points of impact:
Grade 8
Grade 9
# DATA

MAP College and Career Readiness - Based on projected ACT score of 24

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<thead>
<tr>
<th>Grade 8</th>
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<tbody>
<tr>
<td>2016-2017</td>
<td>13.5</td>
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<tr>
<td>2017-2018</td>
<td>15.9</td>
<td>+2.4</td>
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<td>2016-2017</td>
<td>12.8</td>
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<tr>
<td>2017-2018</td>
<td>13.3</td>
<td>+.5</td>
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STUDENT RIT SCORES

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| Grade 9               | +3.0     |
OUR JOURNEY

Realizing the need, we embarked on several impactful steps:

A tool to personalize instruction
Coaches to embed practices and resources.

Kelly and Chad will be sharing their stories of success and challenges to disrupting Math Education.
Key Shifts Required by the Common Core State Standards for Mathematics

Greater Focus on Fewer Topics

Coherence: Linking topics and thinking across grades

Rigor: Pursue conceptual understanding, procedural skills and fluency, and application with equal intensity
Disruption in math as we know it

Using ALEKS to Drive Instruction
Supported procedural skills & fluency at the student level
using ALEKS for personalization
Shift #1
Having the Guts to be Ridiculed

A Philosophical shift that ALEKS can cover the skill range more efficiently than the teacher on his/her own

Everyone on ALEKS all the time
(maybe still attempting to keep doing old model)

Using data and reports to decipher students’ skill abilities

The teacher monitors topic completion and goal setting is initiated.
Original Pilot Teachers - Looks Different in Every Classroom
Risk Takers - Already following Blended Learning or Station Rotation Model.
Shift #2

Using data from ALEKS to drive small group instruction to support student skill acquisition

Two student groups, some on ALEKS, others getting mini lessons from topics chosen from ALEKS data
ALEKS Completion = Course Value + % Progress

Course Values:
- 900 - Algebra 1
- 800 - Course 3
- 700 - HS Alg Prep/Readiness
- 600 - RTI 8
- 400 - RTI Tier 3

γ = 7.8482x - 103.1
R² = 0.6881

Correlation = .7988
Shift #3

Integrate application problems as the teacher created work (low floor, high ceiling)

Move to 3 groups (ALEKS, teacher mini lessons, student application “center”) or begin to create a checklist/menu of weekly work goals

Move to more personalized approach for students to monitor their own learning completion

Opportunities for “Voice and Choice” toward conceptual, procedural/fluency, and application of mathematics standards.
Thank you!

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