Fostering Student Success: Strategies from Mathematics and Music

Institutional Effectiveness Seminar

September 6, 2024

Tony Artimisi, DMA

WINSTON-SALEM STATE UNIVERSITY

WSSU

Outline

1) Definition: Quality Enhancement Plan
2) The Pandemic and Learning Loss
3) Department of Music presentation (Drs. Douthit and O'Connell)
4) Department of Mathematics presentation (Dr. Simpson)
5) Conclusion

Definition: Quality Enhancement Plan

"The Quality Enhancement Plan is an integral component of the reaffirmation of accreditation process and is derived from an institution's ongoing comprehensive planning and evaluation processes. It reflects and affirms a commitment to enhance overall institutional quality and effectiveness by focusing on an issue that the institution considers important to improving student learning outcomes and/or student success. The document submitted by the institution demonstrates that its QEP (a) has a topic identified through its ongoing, comprehensive planning and evaluation processes; (b) has broad-based support of institutional constituencies; (c) focuses on improving specific student learning outcomes and/or student success; (d) commits resources to initiate, implement and complete the QEP; and (e) includes a plan to assess achievement. The On-Site Reaffirmation Committee reviews the document and conducts interviews to determine whether the institution has demonstrated compliance with Standard 7.2." (https://sacscoc.org/app/uploads/2020/01/Quality-Enhancement-Plan-1.pdf)

WSSU QEP 2020-2025

Lower the DFIW Rates in a set of gateway courses

Primary Goals:

- Improved learning (course learning outcome assessment) in gateway courses.
- Improved success (higher grades) in gateway courses.

Secondary Goal

- Improved outcomes (earned hours and cumulative GPA) for first-year students.

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*slide from presentation by Dr. Ken Brown, November 18, 2022

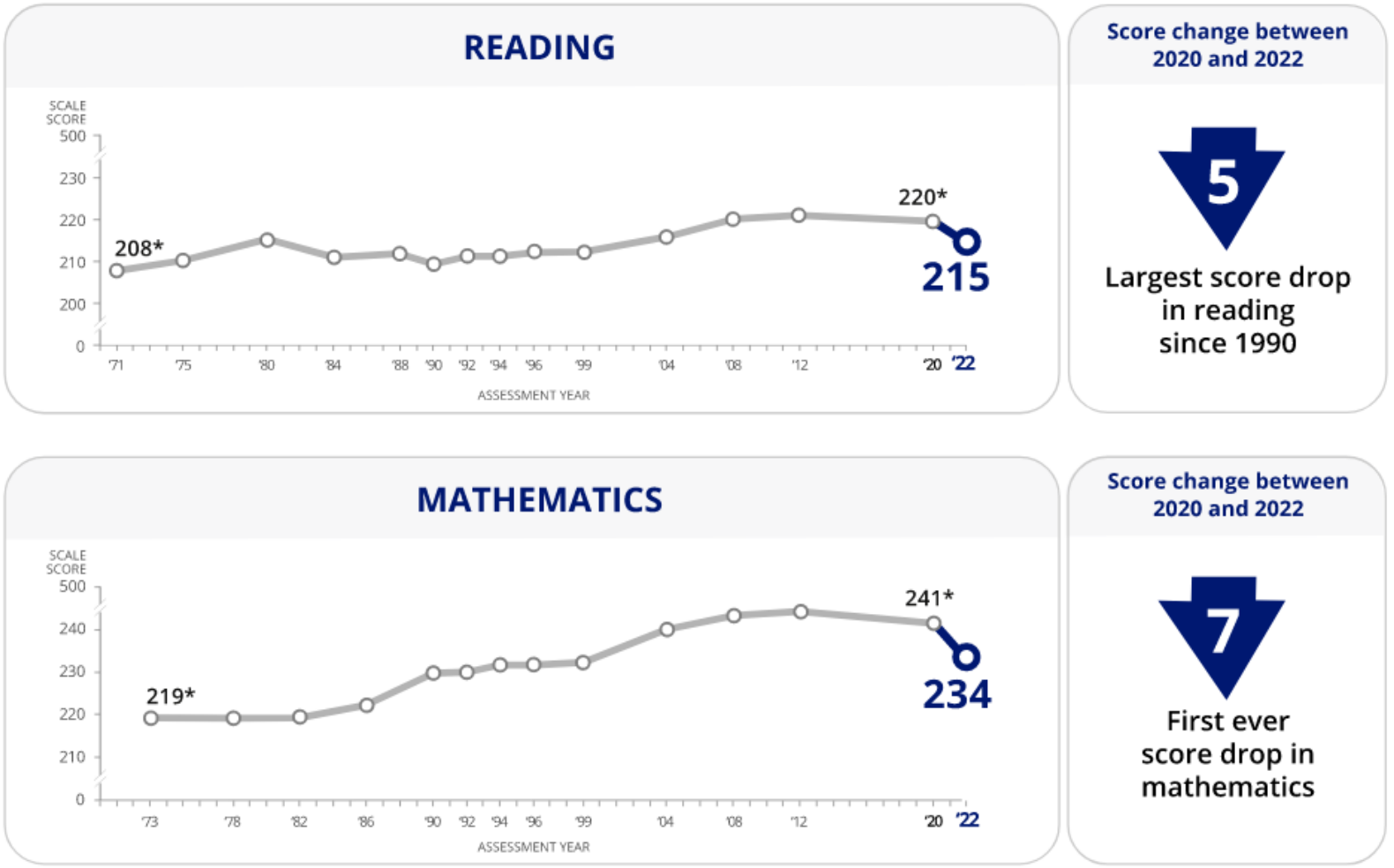
QEP Personnel

QEP Director	Dr. Ken Brown
Course	Team Lead
BIO 1313 – General Biology I	Dr. Carly Kemmis
CHE 1313 – General Chemistry I	Dr. John Merle
HIS 1301 – Introduction to Global History	Dr. Cynthia Villagomez
MAT 1311 – College Algebra	Dr. Qi Chen
MAT 2326 – Elementary Statistics	Dr. John Adeyeye
MUS 1301 – Introduction to Music	Dr. Kinard Douthit
SOC 2326 – Statistics for the Social Sciences	Dr. Richard Moye

The Pandemic and Learning Loss

[Long-term Trends in Reading and Mathematics Achievement]

Average reading and mathematics scale scores on the long-term trend National Assessment of Educational Progress (NAEP): Selected years, 1971 through 2022



* Significantly different ($p < .05$) from 2022.

The Pandemic and Learning Loss

- Where Students Come From Interactive Dashboard
  - This dashboard shows the enrollment trends across the UNC system.
  - Most undergraduate students at WSSU are from Mecklenburg, Forsyth, and Guilford counties.

The Educational Opportunity Project at Stanford University

- https://edopportunity.org/recovery/
- This interactive map shows the learning loss in Mathematics and Reading disaggregated by race, socioeconomic status, and county.
- Mecklenburg and Forsyth counties saw some of the largest declines in NC from 2019 – 2022. Both counties saw increases in 2023 but are still lower than their pre-pandemic levels.
- Black and Hispanic students score lower on average than white students. There is a very large achievement gap when disaggregating for socioeconomic status.
- 61% of WSSU undergraduate students received a Pell grant.

Learning Loss Calculation

1 grade equivalent is based on a 9-month school year. Multiply the 2019-2023 change by 9 to get the number of months. For example, a .89-grade equivalent would be an 8-month loss.

Charlotte-Mecklenburg Schools - Math

2019-2022 Change In Average Reading Achievement In The U.S.
shown by 2019-2022 change in average reading scores for all students by school district

Data

Charlotte-Mecklenburg Schools (2)
North Carolina

OPPORTUNITY METRICS FOR ALL STUDENTS

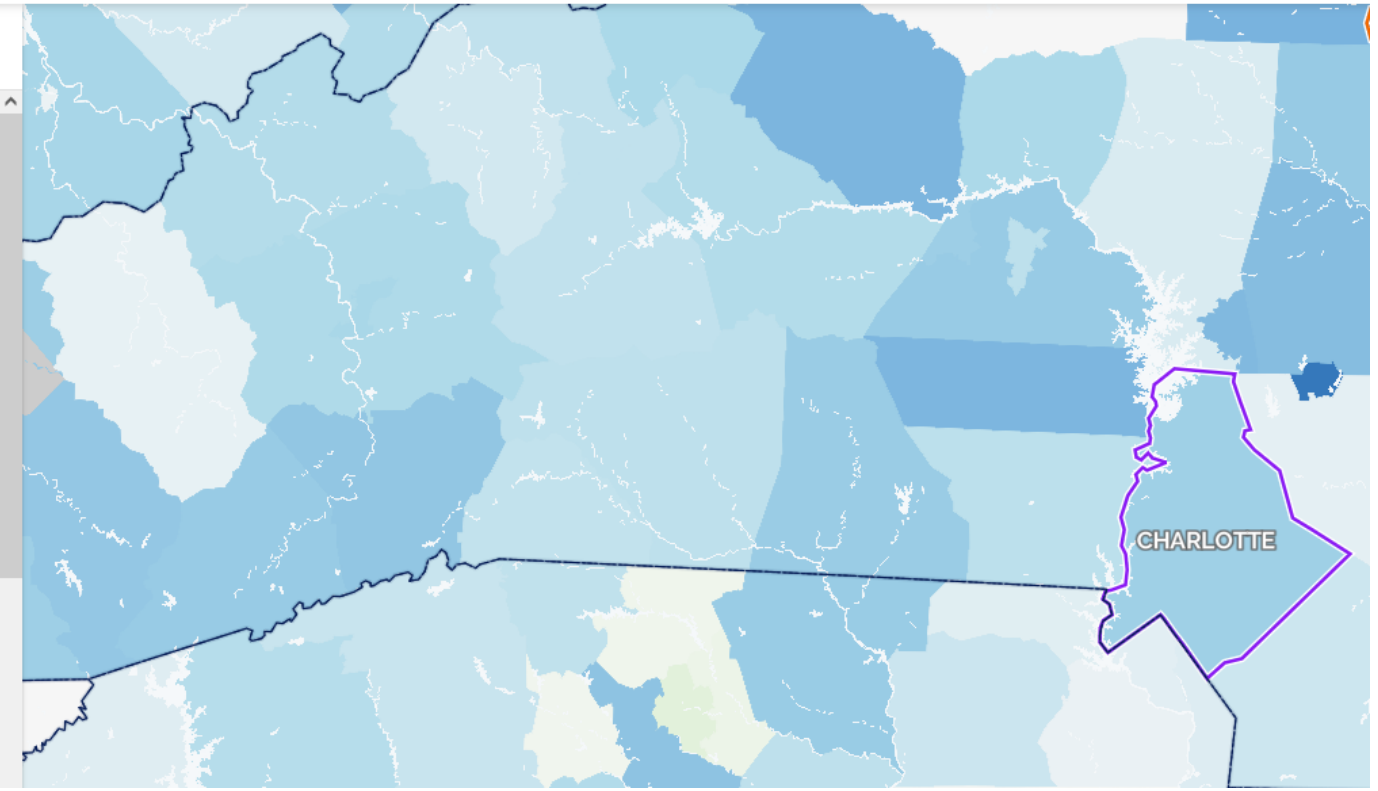
Learn how our methodology has changed

Changes In Average Math Scores
Reflects Change In Average Math Achievement

2019-2022	−1.1 ± 0.2
2022-2023	+0.3 ± 0.07
2019-2023	−0.81 ± 0.2

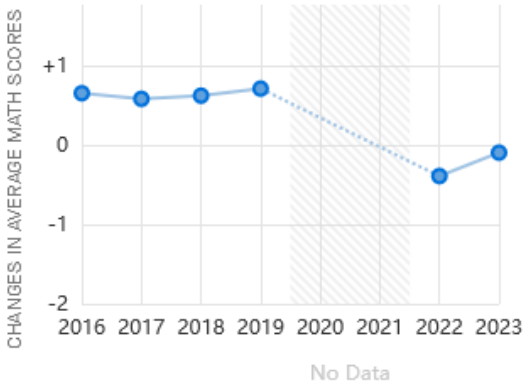
Changes In Average Reading Scores
Reflects Change In Average Reading Achievement

2019-2022	−0.56 ± 0.2
2022-2023	+0.22 ± 0.07
2019-2023	−0.34 ± 0.2



Charlotte-Mecklenburg Schools (2)
North Carolina

2016-2023 CHANGE IN CHANGES IN AVERAGE MATH SCORES



2019-2023 CHANGE IN AVERAGE MATH SCORES BY SUBGROUP

Overall Average	−0.81 ± 0.2
White students	−0.53 ± 0.2
Black students	−0.72 ± 0.2
Hispanic students	−1.06 ± 0.2
Poor students	−0.98 ± 0.2
Non-poor students	−0.68 ± 0.2

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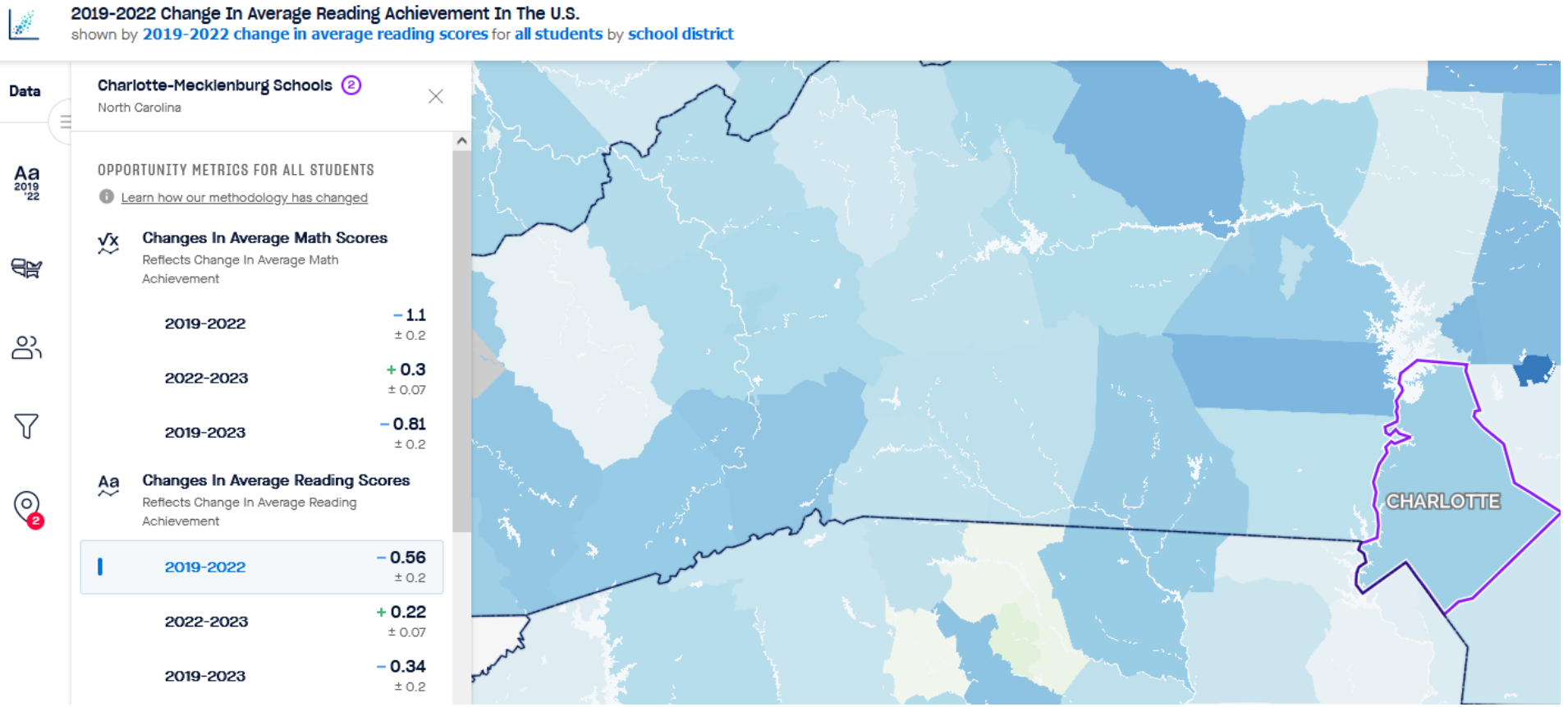
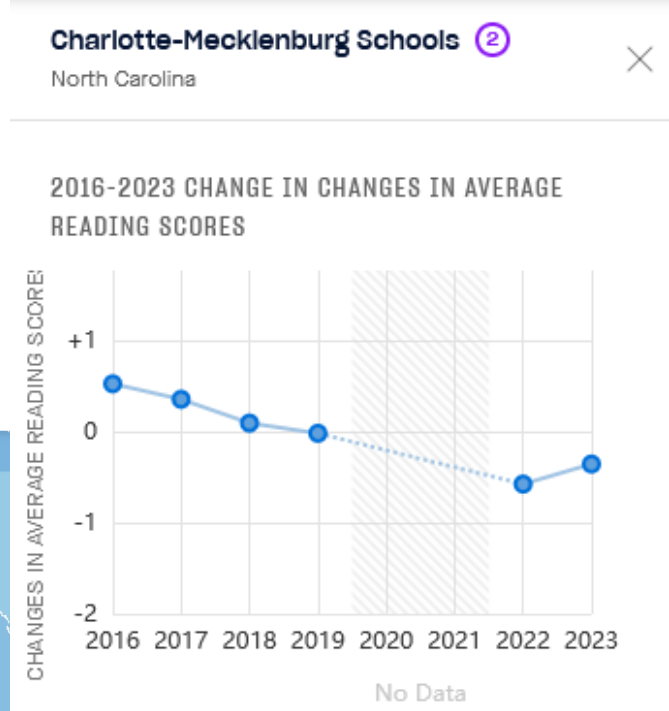
Charlotte-Mecklenburg Schools - Reading





2019-2023 CHANGE IN AVERAGE READING SCORES BY SUBGROUP

Overall Average	−0.34 ± 0.2
White students	−0.09 ± 0.2
Black students	−0.23 ± 0.2
Hispanic students	−0.62 ± 0.2
Poor students	−0.52 ± 0.2
Non-poor students	−0.2 ± 0.2

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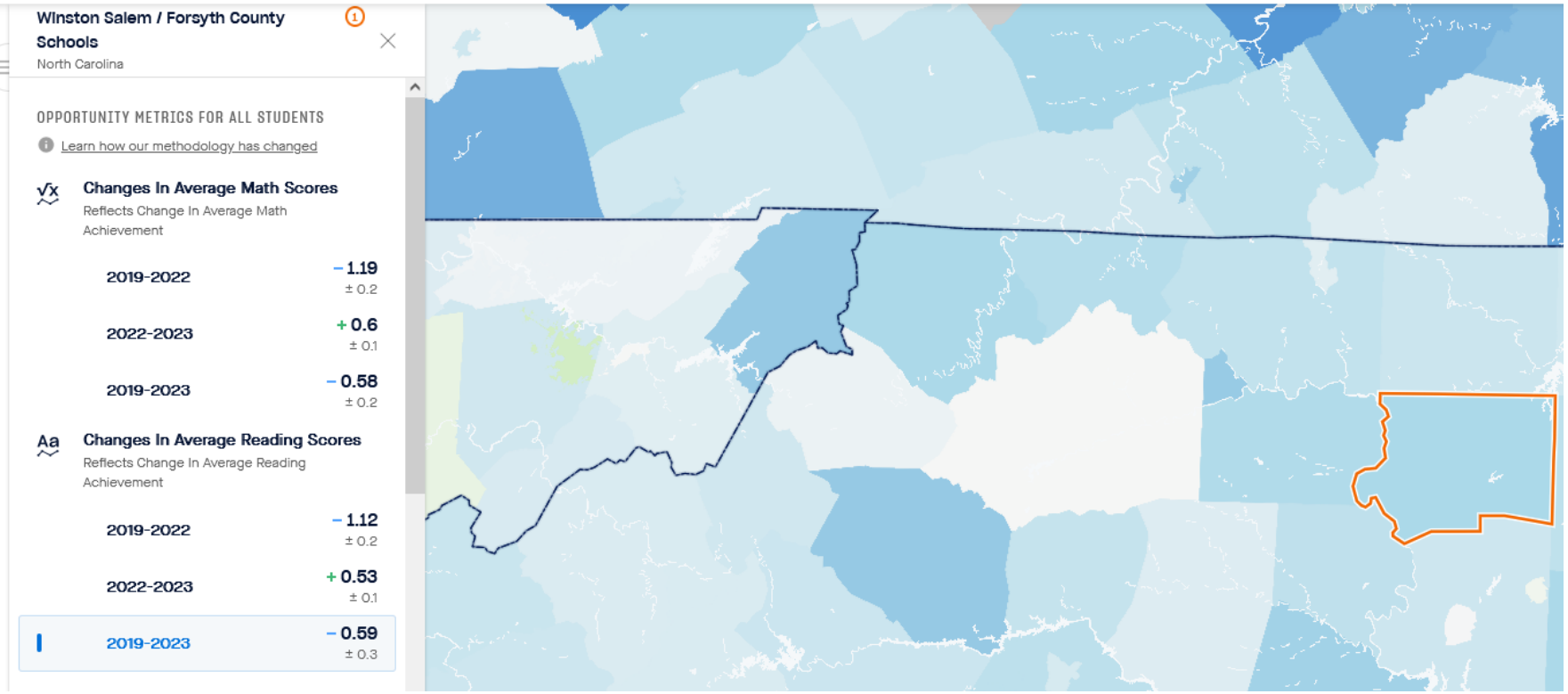
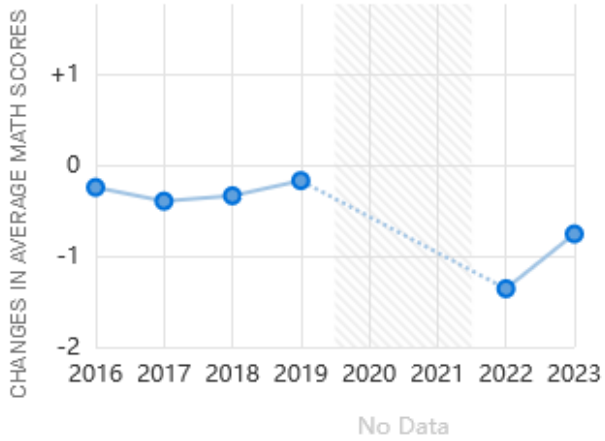
Forsyth County - Math

2019-2023 Change In Average Reading Achievement In The U.S.
shown by **2019-2023 Change in Average Reading scores** for **all students** by **school district**



Winston Salem / Forsyth County Schools
North Carolina

2016-2023 CHANGE IN CHANGES IN AVERAGE MATH SCORES



2019-2023 CHANGE IN AVERAGE MATH SCORES BY SUBGROUP

Overall Average	– 0.58 ± 0.2
White students	– 0.24 ± 0.3
Black students	– 0.49 ± 0.3
Hispanic students	– 0.61 ± 0.3
Poor students	– 0.71 ± 0.2
Non-poor students	– 0.45 ± 0.2

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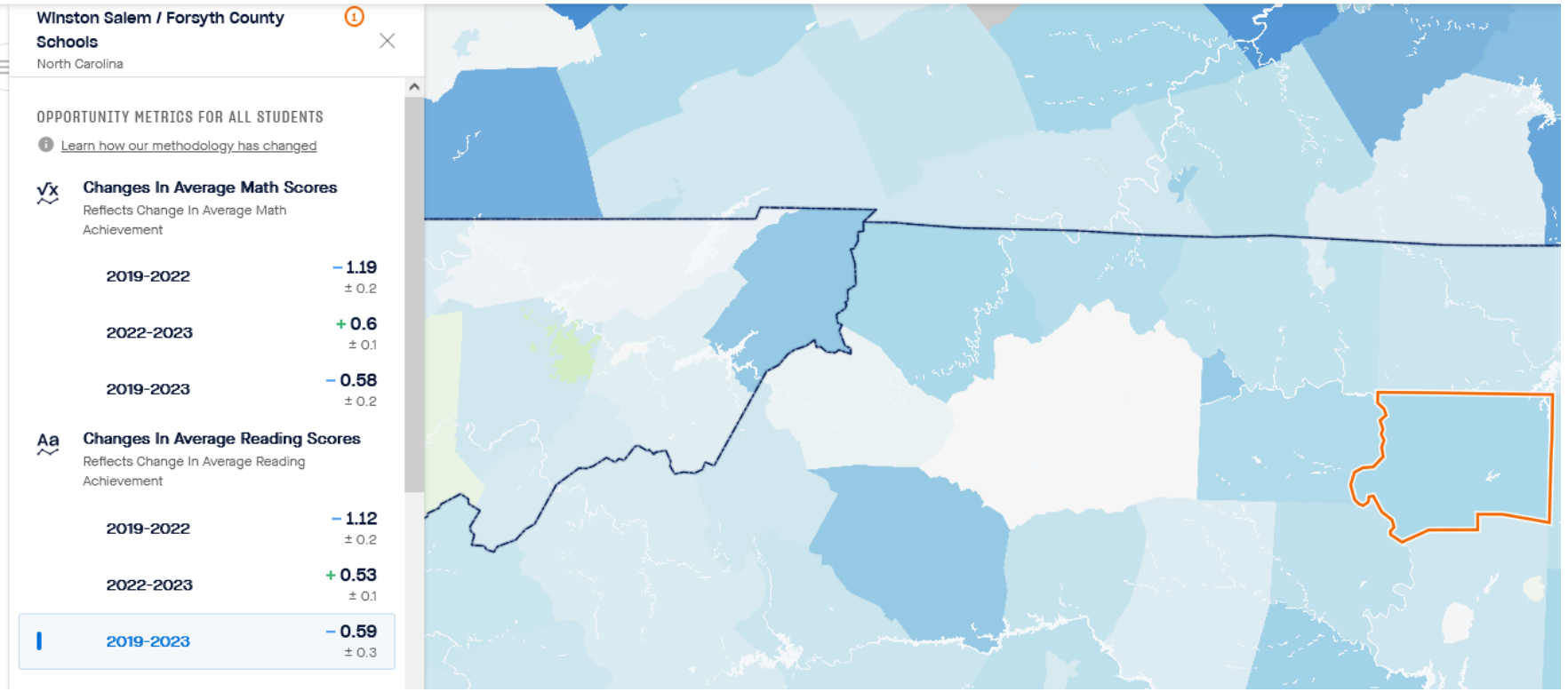
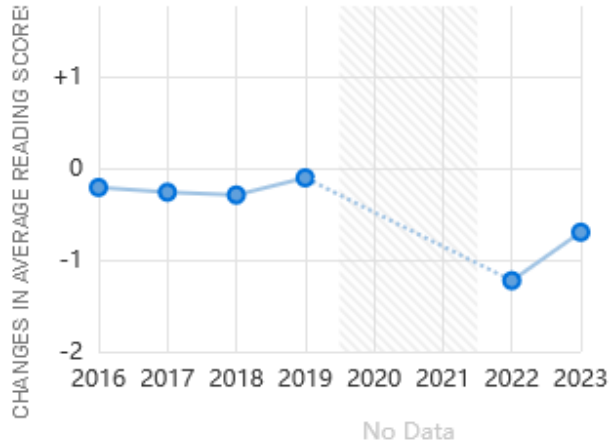
Forsyth County - Reading

2019-2023 Change In Average Reading Achievement In The U.S.
shown by **2019-2023 Change in Average Reading scores** for **all students** by **school district**



Winston Salem / Forsyth County Schools
North Carolina

2016-2023 CHANGE IN CHANGES IN AVERAGE READING SCORES



2019-2023 CHANGE IN AVERAGE READING SCORES BY SUBGROUP

Overall Average	−0.59 ± 0.3
White students	−0.32 ± 0.3
Black students	−0.44 ± 0.3
Hispanic students	−0.57 ± 0.3
Poor students	−0.67 ± 0.3
Non-poor students	−0.52 ± 0.3

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QEP Math and Music Results

- Open Excel document showing trends

Music Presentation

- Drs. Kinard Douthit and Debra O’Connell

Fostering Student Success: Strategies from Music

Dr. Kinard Douthit and Dr. Debbie O'Connell

September 6, 2024

Institutional Effectiveness Seminar

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WSSU

Data for Average DFW Rates in Music 1301

- Fall 2022 - 24%
- Spring 2023 - 25.5%
- **Fall 2023 - 13.5%** 

- **The main evidence of improvement came from faculty buy-in**
- As more faculty began to join QEP Summer Institutes and ACUE programs, this facilitated the “How” of our process

Strategies Implemented by MUS 1301 Faculty in Fall 2023

- Implemented the use of one-on-one communication with tips, suggestions, and communication on their individual needs, and made sure they understood content
- Implemented the use of study guides for several tests and quizzes, so that the students grasped the pertinent concepts of music, including rhythm, form, dynamics, tone, pitch, texture, harmony, melody and instrumentation
- Reached out to individual students via email when necessary, had students share study strategies via discussion board

More strategies…

- Implemented accountability groups so each person had a team to connect with about anything course related, the use of guided note taking with study guides to prepare for quizzes
- Slowed down and demonstrated in class, and allowed students to begin assignments in class with their groups while they have support
- Reached out to students personally after each unit with what they are doing well and/or what assignments they are missing with an opportunity to complete those missing assignments

Sources for Strategies

- QEP Summer Institutes - so much great information
- CITI - offered several ideas for using Adobe tools, Culturally sensitive practices, and Small teaching practices
- ACUE - “creating sense of community”
- QEP meetings - allowed faculty to share with one another what was working, focused on our student learning outcomes
- Refined assignments and assessments as we went along, consistently changed what did not work, and leaned into effective practices

Other Strategies and Challenges

- Using EAB and regular progress reporting
  - Challenges
    - Need continued support from academic counselors for follow up
    - Often students are addressed once, but not always if issues with student persist
- Email every absent student through add/drop period, but also continue throughout the semester
- Administratively withdraw students who don't show up/turn in work during the add/drop period after repeated attempts to contact

Our Thoughts and Conclusions

- As faculty we have to be more present for our individual students than ever before
- We must be more responsive to their individual needs
- We must initiate help, this is their most vulnerable area
  - Often socially awkward from the pandemic
  - Sometimes they fear: responsibility/work/failure/success

Chinese Proverb

“Teachers open the door, but you must enter by yourself”

I think we can do better than that …

Questions or Comments?

Thank you!

Mathematics Presentation

- Dr. Felicia Simpson

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Equity in Practice for Student Success in Mathematics Gateway Courses: Pedagogical and Curricular Innovations

DEPARTMENT OF MATHEMATICS

SEPTEMBER 6TH, 2024

Dr. Felicia Simpson, Dr. John Adeyeye, Dr. Qi Chen, Dr. Mark Hunnell, Dr. Noah Hughes, Dr. Katie Johnston, Dr. Yuan Li, Dr. Bao Maddux, Dr. Pamela Moses-Snipes, Dr. Vincent Snipes, Dr. Tyler Tillman, and Dr. Tracy White

Quality Enhancement Plan (QEP) Teams

MAT 1311 College Algebra Team

- Dr. Qi Chen
- Dr. Katie Johnston
- Dr. Yuan LI
- Dr. Vincent Snipes
- Dr. Pamela Moses-Snipes
- Dr. Tracy White
- Mr. Tyler Tillman

MAT 2326 Elementary Statistics Team

- Dr. John Adeyeye
- Dr. Mark Hunnell
- Dr. Noah Hughes
- Dr. Bao Maddux
- Dr. Felicia Simpson
- Mr. Tyler Tillman

Mathematics Department Term QEP Course Student Performance

The target DFW rate ≤18%)

MAT 1311 and MAT 2326 has been over that rate for the past three terms

<u>Fall 2023 DFW rates for MAT1311 and MAT 2326</u>

MAT 1311 DFW Average was **15.4%**

MAT 2326 DFW Average was **17.1%**

Mathematics Department Term QEP Course Student Performance

Fall 2023 DFW rates for MAT1311 and MAT 2326

MAT 1311 DFW Average was **16.81%**

MAT 2326 DFW Average was **19.45%**

Spring DFW rates for MAT1311 and MAT 2326

MAT 1311 DFW Average was **16.96%**

MAT 2326 DFW Average was **16.78%**

Approaches in Pedagogies or Curriculum Development to Empower our Students

- Student –Centered Learning
- Emotional Support
- Open Seminars/Question Sessions
- Active Learning Techniques
- Cooperative Learning/ Structured Student Collaboration
- Using Technology
- Transparent Communication /Monitoring Progress

Approaches in Pedagogies or Curriculum Development to Empower our Students

Student –Centered Learning

- Create lectures based on students' interest
- Incorporate the students' major disciplines by relating them to real-life experiences and relevant applications using mathematics and statistics.
- Shifting the order of course material based on student's feedback and historical performance in the course.

Example:

- Using examples related to music culture, public health, and social justice issues in lectures
- Using relevant datasets in the class to increase students interests in data collecting.
- Shifting the course material to allow students more time to learn and digest it.

Approaches in Pedagogies or Curriculum Development to empower our students

Emotional Support

- Supporting both individuality and diversity of each student but also finding similarities among students.
- Catering to different learning styles so that each student has a chance to succeed and receive positive reinforcement from their instructor.
- Encourage one-on-one interaction between the student and the instructor.
- It is important that students see their instructor as a full human being, not just a math professor.
- Sharing our journey to a career in mathematics that includes our own struggles and fears, has helped students feel more inclusive.

Providing a Sense of Belonging Math Courses Curriculum

Belonging is also critically tied to social identity

Belonging is feeling of connectedness, security, and support to a group or community

It is important for students to have a sense of belonging in and outside the classroom

Providing a Sense of Belonging Math Courses Curriculum

A sense of belonging has helped increase students' educational success and engagement in the classroom

Having a sense of belonging has provided the students with the ability to feel a sense of acceptance, respect , inclusion and support in the classroom.

Approaches in Pedagogies or Curriculum Development to Empower our Students

Open Seminars/Question Sessions

- Providing an opportunity for the students' voice to be heard.
- Asking students a range of questions throughout class to create an environment that they feel comfortable participating in.

Benefits

- This exercise provides students with the opportunity to have equal voices in a classroom setting but it also teaches students to respect each other's opinion.
- Creates an environment where it is normal to ask questions.

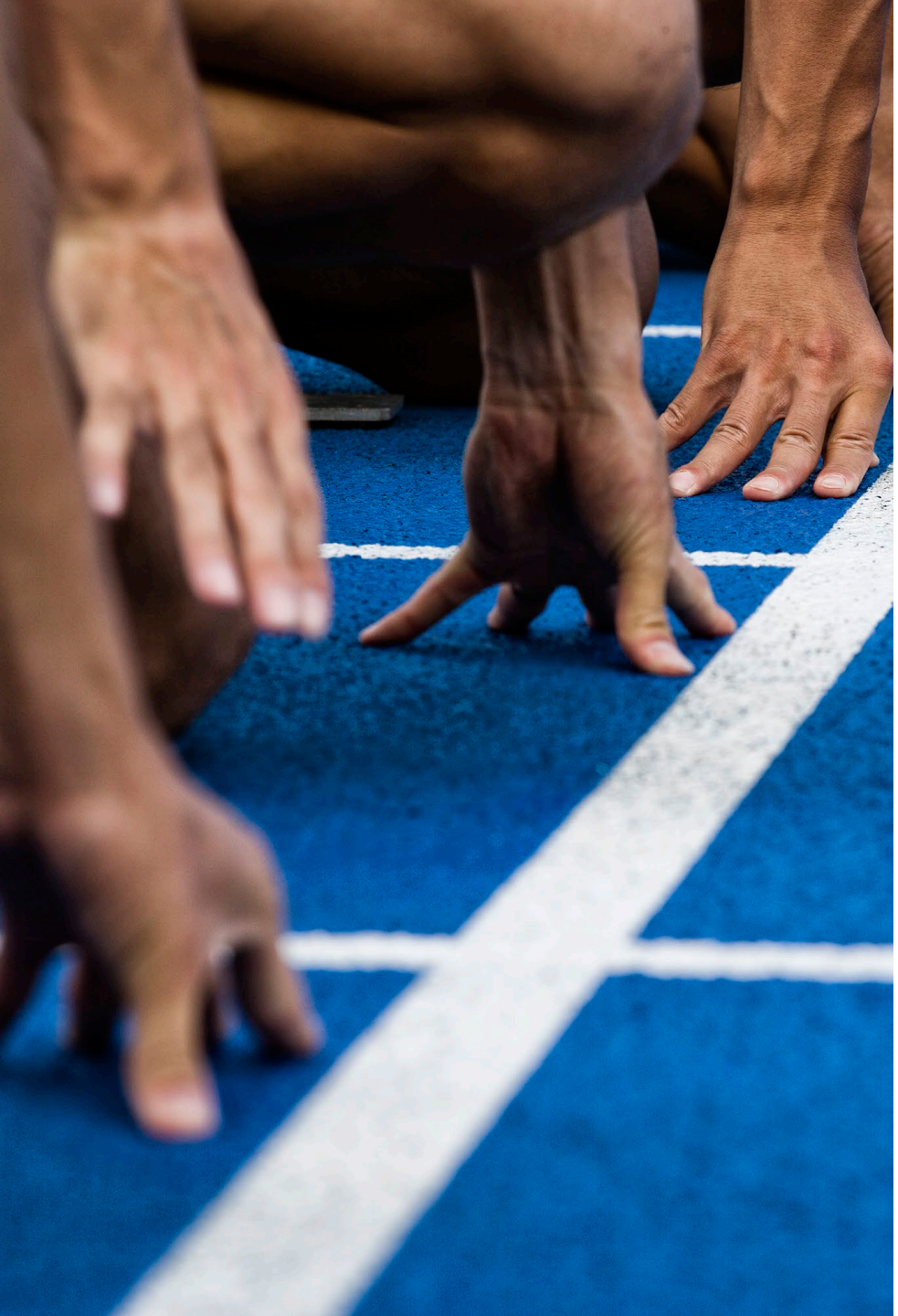
Approaches in Pedagogies or Curriculum Development to empower our students

Active Learning Techniques-FLASH CARDS

Using flashcards as a teaching tool for memory retention, metacognition and spaced repetition

Benefits Of Using Flashcards

1. Helps with retention of material in smaller portions
2. Portable learning materials that may be carried anywhere
3. Students are able to make better use of their time and learn something new every day if they carry their decks wherever they go.
4. Improves overall learning efficiency
5. Cost-effective



Approaches in Pedagogies or Curriculum Development to Empower our Students

Active Learning Techniques- Daily Warm-Up Problems

Administering warm-up problems at the beginning of each class

Benefits Of Using Daily Warm-Up Problems

1. Get students' brains ready for learning
2. Help instructors identify areas to focus on
3. Provides students with the opportunity to review previously learned material
4. Helps students develop fluency and automaticity.
5. Helps students build conceptual understanding.
6. Helps students develop positive attitudes toward math

Approaches in Pedagogies or Curriculum Development to Empower our Students

Active Learning Techniques-Effective Note-Taking

Teaching Students to Take Better Notes: Notes on Notetaking

Benefits of effective Note-Taking

1. Helps students concentrate and listen effectively.
2. Helps students understand main concepts
3. Boost Memory
4. Creates an active learning environment
5. Helps boost class attendance
6. Notes create a resource for exam preparation.

Approaches in Pedagogies or Curriculum Development to Empower our Students

Cooperative Learning/ Structured Student Collaboration

- Create a learning environment that allows the students to learn how to foster peer relationship
- Create a collaborative and active learning environment

Examples

- Creating small group activities in the classroom
- Creating group projects for students to solve word problems
- Creating group quizzes

Benefits: Small group opportunities strengthen students' understanding of the material and encourage active learning. It helps students to think individually and as a group about the topic.

Approaches in Pedagogies or Curriculum Development to Empower our Students

Using Technology

Desmos Test Mode over the standard normal table or T-Distribution table

Benefits

- Desmos Test Mode offers interactive learning and immediate feedback.
- Instructors can demonstrate the process of using Desmos Test Mode on their laptops and have it projected on the board for students to easily follow the steps and correct the mistakes they make effectively.

Approaches in Pedagogies or Curriculum Development to Empower our Students

Using Technology

Desmos Test Mode over the standard normal table or T-Distribution table

Benefits

- With Desmos, students can visualize the graph of the Normal distributions. Students can see how changing parameters like mean and standard deviation alter the curve in real time and the relationships between area and probability.
- Provides a visual representation that aids in understanding the concept.
- Desmos is accessible online, making it convenient for students to use both in and outside the classroom, and they do not need to spend significant time searching through the table.

Approaches in Pedagogies or Curriculum Development to Empower our Students

Using Technology

Recording lectures using zoom

Benefits:

- Improves comprehension of the course material
- Allows students to go back and review the course material to ensure they did not miss any important details
- Helps students to prepare for their exam and assessment
- Greater equality of access

Approaches in Pedagogies or Curriculum Development to Empower our students

Transparent Communication/Monitoring Progress

- Ensuring students are aware of their progress in the course throughout the semester
- Identifying and discussing areas of improvement or growth
- Providing students with an intervention plan and setting goals

Benefits:

- Increases Trust
- Leads to better problem-solving
- Improves student performance

Thank you

Q&A Session, Thoughts, Conclusions

Acknowledgements

- Dr. Ken Brown (QEP Director)
- Dr. Georgette Crawford-Crooks (SSC)
- Dr. Wanda White-Walker, Dr. Jeremiah Shipp, Dr. Michele Leverett, and Ms. Lelia O'Neal (CITI)
- QEP Team Leads and faculty

Thank You for Attending!