



Relational Strategies and Promising Practices in Mathematics Instruction

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Sponsoring Committee: Pathways Joint Subcommittee

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Outline

Introduction and connections to Mathematics Pathways

Description of relational and promising practices and the research behind them

Examples of these practices in action identified in classroom observations conducted in Transitioning Learners to Calculus in Community Colleges (TLC3)

Questions and Answers 10-15 minutes





Imagine . . .

You are observing a colleague teaching and you like what you see

Good choice of examples and problems worked

Appropriate level of challenge

Good explanations and effective questions

Culture of welcomeness ★

Performance monitoring ★

Positive messaging

Culturally relevant teaching





Connections to Mathematics Pathways

Mathematics Pathways increases the need for faculty-student interactions

Helping students understand mathematics pathways

Identifying prerequisite knowledge in corequisite courses

Supporting students placing into the lowest levels





Promising Practices

Relational Strategies

Welcomeness (inside)

- Welcomeness (outside)
- Microaggressions
- Relationships
- Validation
- Disclosing

Epistemology

- Institutional Responsibility
- High Expectations

Teaching Strategies

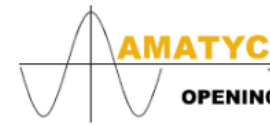
Performance Monitoring

- Empowerment
- Collaborative Learning
- Culturally relevant teaching
- Intrusiveness

Faculty Student Engagement

Wood, Harris III, & White (2015)



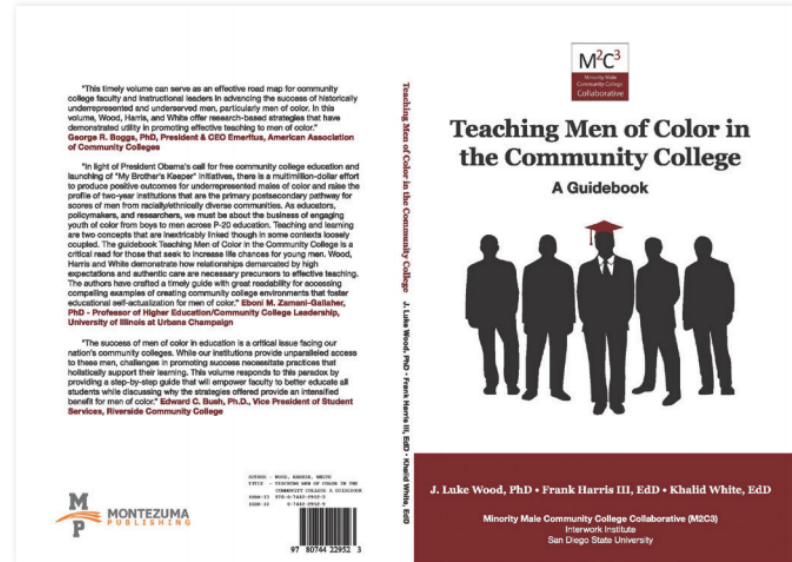


Development of Promising Practices

- 1) Extensive literature review
- 2) Student narratives and interviews
- 3) Promising practices from faculty in Community College
- 4) Quantitative analysis of student experiences and faculty practices

TRENDING BOOK PUBLICATIONS

Teaching Men of Color in the Community College: A Guidebook



Sold By: Montezuma Publishing

ISBNs: 9780744229523, 9780744237269

Publish Year: 2015

Language: English

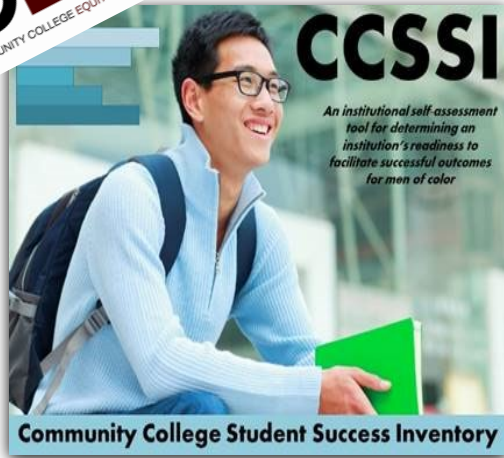
Number of Pages: 108

This guidebook articulates strategies for teaching men of color in community college. You will learn why implementing these approaches may take additional support from instructional leaders (e.g., department chairs, faculty development professionals, academic deans, vice presidents of instruction). Beyond providing recommendations for their peers, faculty leaders also extended suggestions for college leaders. Specifically, these suggestions focused on staff and strategies.



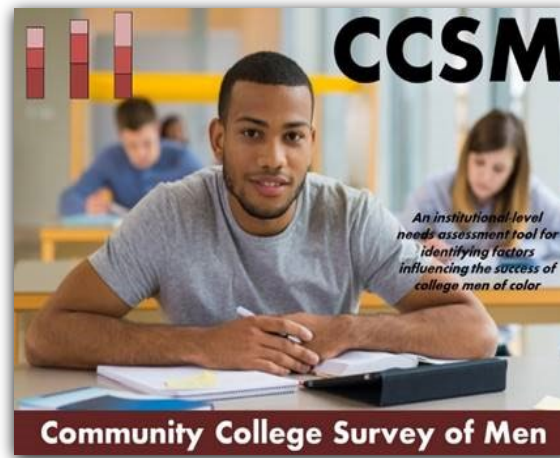


Institutional Assessment Package



Self-Assessment

- Determine an institution's readiness to facilitate successful outcomes for underserved students.



Student Survey

- Identify factors influencing the success of underserved students



Faculty Survey

- Inform professional development programming for instructional faculty





Promising Relational Strategy

Welcomeness to Engage

Create an environment that welcomes student engagement

- Open nonverbal and inviting verbal communication
- Positive messaging to counter negative narratives about school
- Critique privately, praise publicly

Wood, Harris III, & White (2015)





Welcomeness to Engage

Increase motivational messaging

- Validation
- Work Ethic
- Resilience
- Positive Futures

Underserved students must hear “you belong”, “you can do the work”, “you can succeed”, “you have the ability”, “you are very intelligent”

Avoid Unintentional Micromessaging

- Microaggression, Microinsults, Microinvalidations
 - “wow, you are very articulate”; huh, you are really good at math”
 - Negating students of color experiences with racism





Promising Teaching Practice

• Performance Monitoring

Proactively address concerns before they become larger issues.
Involves **monitoring** students' attendance and assignment outcomes.

- Be proactive in asking students if they need assistance
- Encourage students who are “on the margins”
- Know when to “step in”

Wood, Harris III, & White (2015)





Performance Monitoring

Early Alert

Monitor key predictors of student course success

- Attendance
- Low scores on an exam or major assignments
- Arriving to class late
- Leaving class early
- Submission of incomplete work
- Disengagement in class discourse





Practices in Action: Sources of Data

TLC3 National Survey of Community College Mathematic Chairs

What programs, structures, and instructional strategies are community colleges currently implementing in the STEM math pathway and improvement priorities

Case Studies of four Minority-Serving Institutions (HSI, PBI, TC, AANAPISI)

How do these efforts support students from historically underrepresented groups?

Selected mainly based on available state-level math data, National Survey responses, and proximity to a transfer institution

Observed 26 classes: developmental, precalculus, and calculus

Mathematical practices and relational practices observed (2 observers)

Field notes recorded in an online form with common prompts

Qualitative analysis to identify themes





Welcomeness to Engage

21 (81%) agreed; 2 neutral, 3 disagreed

Three themes:

1. Basics of welcomeness
2. Physical aspects of welcomeness
3. Welcomeness to engage in mathematics





Welcomeness to Engage: The Basics

- Being on time or early
- Interacting with students as they enter the class
- Asking “How are you?”
- Using students’ names
- Smiling
- Relaxed atmosphere
- Helping students with registration and wait list
- “Take care” “Have a great day” at the end of class





Welcomeness to Engage: Physical Aspects

- Looking at students when they are asking a question
- Pointing and saying “yes” to physically acknowledge students when they respond
- Open posture with arms; not turning back to students
- Tone of voice indicating welcomeness
- Walking around and openly engaging students while they work on problems
- Leaning in when working with students





Welcomeness to Engage in the Mathematics

- Acknowledging the material may be complicated but they would get it
- Speaking one-on-one with students around a mathematical problem
- Encouraging students to “take a shot” at a problem
- “Let’s get some more people in here” using the roll; mitigates any tendency for a few students who may dominate
- Validating an approach a student has taken (so that they continue to engage) – “Factoring, I like it!” “Cute what you did there.” “Touchdown” when a student did well
- Reframing a mistake to keep the student engaged, “It’s not you; it’s hard you can do this” “Your graph can be funky and you can still find the answer”





Performance Monitoring

24 (92%) agreed; 1 neutral, 1 disagree

Three themes:

1. Reminding
2. Asking questions
3. Circulating and checking students' work





Performance Monitoring: Reminding

Course logistics – due dates, where to find things (this is in a handout, or this is on Canvas), where to find current grade

Resources – tutoring center, office hours

Performance expectations – show work, reminding them about key steps, “this technique is important,” “you will need to know this,” “this is the hardest thing that will be on the test”

Comments:

What you remind versus how you remind – verbal, on board, email

Some students can be hesitant to seek help





Performance Monitoring: Asking Questions

Complex question: Asking about the meaning of a statement , whether it would be acceptable to do a particular next step in a problem or “How do you see that?”

Check-in type questions: “Got that?” “Everything OK?” “Does this look OK?”

Comments:

Check-in questions have a place: They seek to affirm that students are following and keeping up with the presentation

These questions alone are not enough to truly monitor performance for all students





Performance Monitoring: Walking around and checking student work

Instructor offering guidance and assistance: “OK, wait you’ve gone too far, don’t simplify,” “You need to do this.”

Instructor taking on the responsibility for the confusion: “I’m feeling a roadblock; let’s do another one.” “I think we need to a little more.”

Instructor effectively handling student mistakes or misunderstandings, “I heard a like and unlike. I want to hear a justification on both.”

Comment: Students can monitor each other’s performance as they help each other





Summary and Questions

- **Welcomeness to engage:** basics, physical aspects, welcomeness to engage in mathematics
- **Performance monitoring:** reminding, questioning, circulating and checking students' work
- These practices can help increase student engagement in all classes, particularly relevant for mathematics pathways courses
- These practices are shown to enhance the success of students from historically underserved groups
- Questions?





Thank you!

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