

Summer Math Institute

Report

October 5, 2021

Project Timeline

- Project Development w/ Project Team
 - December 2020- March 2021
- Proposal Presentation to Board of Trustees
 - April 1, 2021
- Summer Math Institute
 - June 21, 2021 – August 13, 2021
- Online Survey to Students
 - August 10 – August 13, 2021
- Focus Group Interviews (Faculty and Students)
 - August 13, 2021

Proposal Development Team

Moreno Valley College

- Carlos Lopez, VPAA
- Jacob Kevari, Dean, Institutional Effectiveness
- Sean Drake, Professor, Chair, Math
- Rosalia Cueto, Associate Professor, Math
- Melody Graveen, Dean, STEM & CTE

Norco College

- Samuel Lee, VPAA
- Jason Parks, Dean, STEM/Business Mgmt.
- Jeff Mulari, Associate Professor, Co-Chair, Math
- Jeff Warsinski, Assistant Professor, Co-Chair, Math

Riverside City College

- Susan Mills, Interim VPAA
- Scott Blair, Dean, STEM
- Marc Sanchez, Associate Professor, Co-Chair, Math
- Amanda Brown, Associate Professor, Co-Chair, Math
- Valerie Merrill, Assistant Professor, Math
- Mary Legner, Professor, Math
- Wendy McEwen, Dean, Institutional Effectiveness
- Kyla O'Conner, Dean of Admissions & Records
- Inez Moore, Director of Academic Support

RCCD

- Jeannie Kim, Interim Vice Chancellor, Educational Services and Strategic Planning

Proposal Consultation Members: Financial Aid Directors – Sandra Martinex (MVC), Maria Gonzalez (NC), Elizabeth Hilton (RCC); Lucy Valenzuela, Business Services (RCC); John Geraghty, RCCD Controller; Delia Tijerina, Director of Outreach (RCC); Vice Presidents of Student Services – Christopher Sweeten (MVC), Kaneesha Tarrant (NC), FeRita Carter (RCC)

Evaluation Team Members

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Norco College

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- Caitlin Welch, Institutional Research Specialist

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- Wendy McEwen, Dean, Institutional Effectiveness
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RCCD

- Jeannie Kim, Interim Vice Chancellor, Educational Services and Strategic Planning
- Lijuan Zhai, Associate Vice Chancellor, Educational Services and Institutional Effectiveness
- David Torres, Dean, Institutional Research and Strategic Planning
- David Buitron, Institutional Research Specialist

Why an Intensive Summer Math Institute?

- RCCD data reveals that as recently as 2019, that 59% of First-Time Freshmen (FTF) are not attempting college-level math during their first year
- Of those FTF that attempt college-level math, only 19% complete successfully
- Further, of the 19% of students who successfully completed math, African-American/Black students disproportionately trailed in success rates followed by Latinx students
- Summer Math Institute is designed to address these equity gaps of both representation and success

Preliminary Research Questions

For graduating high school seniors:

- Will graduating African-American/Black and Latinx high school seniors enroll and successfully complete an intensive summer math course given appropriate incentives and supports?
- Does the equity gap decrease in the number of students attempting and successfully completing the summer math course in comparison to the transfer level math completion rate of prior first-time freshmen cohorts?

For currently enrolled RCCD students:

- Will currently enrolled African-American/Black and Latinx RCCD students who have previously not enrolled in MAT 36/136 or MAT 12/112 courses, enroll and successfully complete an intensive summer math course given appropriate incentives and supports?
- Does the equity gap decrease in the number of students attempting and successfully completing the summer math course in comparison to other RCCD students with similar demographics?

For program improvement:

- What are the pedagogical lessons learned that can be applied to math courses in future terms? Specifically, does culturally relevant and equity-minded pedagogical approaches increase student success and decrease equity gaps?

Summer Math Institute Design

- **Course Framework:** 8-weeks in length beginning June 21 and ending August 13, 2021. The core course (MAT 12/MAT 36) will operate with the typical 50 minutes of instruction time. The support courses (MAT 112/MAT 136) will operate with the typical 2 hours and 5 minutes of instruction time.
- **Support Courses:** All students will be required to concurrently enroll in support courses. Faculty reasoned that given the intensity of an 8-week course, all students enrolling in this summer program would benefit from the additional support.
- **Embedded Tutoring:** Each section will have an embedded tutor to facilitate small group discussions, provide peer support and tutoring, modeling active learning strategies as they assist and/or co-facilitates effective learning strategies.
- **Course Modality:** Ideally, the faculty would like to teach these courses face-to-face. However, given current limitations, courses will be developed for one of the following modalities:
 - Regular Meeting (REG MEET) - Distance education classes with regular weekly meeting during scheduled days and times.
 - Occasional Meeting (OCC MEET) - Distance education classes with occasional meetings during scheduled days and times.

Faculty Selection and Professional Development

- Chairs identified two primary criteria in recruiting and selecting instructors for this program
 - Selected instructors were required to have previously taught the course they will be teaching and had demonstrated their capability to effectively teach the course at least once prior to Summer 2021
 - Willingness of instructors to work together in designing the delivery of the curriculum in a collaborative manner with a commitment to student success, especially for traditionally underrepresented and minoritized students
- Culturally Relevant and Equity-Minded Pedagogy
 - Instructional faculty are meeting regularly during the Spring 2021 term, creating a community of practice for each course. This CoP will actively collaborate across the district to design and align pedagogical approaches and deliver content with equity and student success in mind.

Student Incentives

- Loaned Laptop and WiFi Hotspot (via existing College-based loan programs)
- Free Tuition and Fees for Summer 2021 Program
- Summer Math Course Cash Scholarship: Total of \$1000 cash for the summer, First \$500 disbursed week of July 15 and second \$500 disbursed week of August 2
- Opportunity to apply for and receive up to \$1000 HEERF 2/3 Student Aid funds for every term student is enrolled at a RCCD college including Summer 2021
- Guaranteed Promise Program Enrollment for new first-time freshmen who meet eligibility requirements and are enrolling in Fall 2021 at a RCCD college which includes priority registration for the first year of college (Must complete Student Education Plan (SEP) during the Fall Semester)
- Guaranteed 2/3 Year Pathway to graduation from RCCD colleges
- Guaranteed 2/3 Year Pathway to transfer opportunity to 4-year institution
- Workshop(s) to assist students on completing Financial Aid Applications

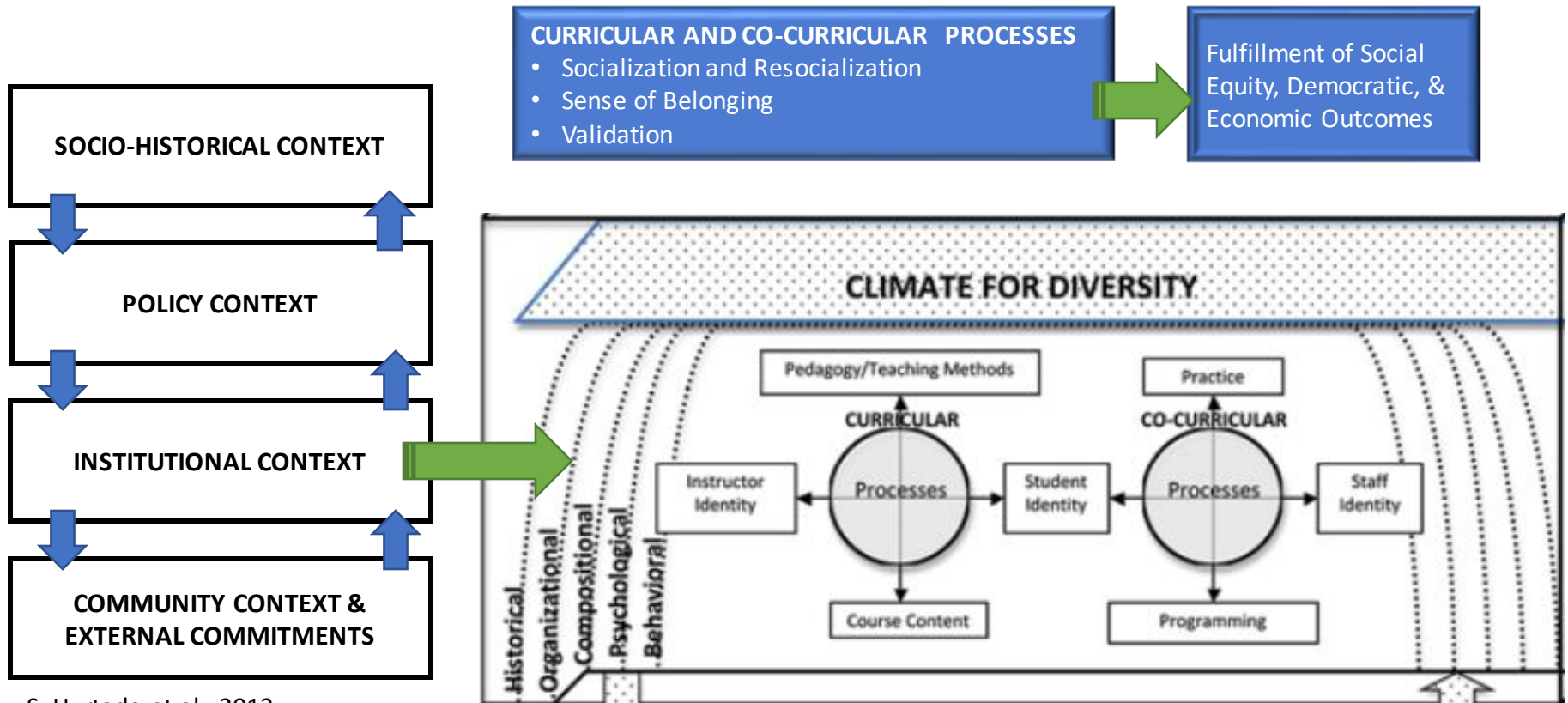
Basic Requirement for Receiving Incentives

- Students must participate in Home RCCD College Engagement Centers on a weekly basis

Outreach via High Schools, Emails, Texts, Social Media

- High School Students
 - Information sessions on the Promise Program and the Summer Math Institute
 - Specific outreach to high school seniors who have completed and/or are currently enrolled in Algebra 2 or Integrated Math 3, for STEM pathways
 - All Feeder High Schools
- Current RCCD Students
 - Targeted outreach via email, texts and calls to students who began Fall 2019 and Fall 2020
 - Umoja and Puente programs
 - RCCD Counselor referrals
 - Promise Programs and financial aid notifications will include information on the Summer Math Institute opportunity, encouraging students to enroll

The Theory behind our approach: Multi-contextual Model for Diverse Learning Environments



S. Hurtado et al., 2012

Data Collection Components

Faculty

- Qualitative
 - Focus Group

Students

- Qualitative
 - Survey
 - Focus Group
- Quantitative (disaggregated)
 - Enrollment
 - Academic Support
 - Course Success

Faculty Approaches

Math 36/136

Instructors- Bibiana Lopez-Segoviano (Norco), Felicia Mendoza (Norco), Jesus Magana (RCC), Rosalia Cueto (MVC)

- Discussions
- Breakout rooms
- Embedded tutoring
- In and out of class workshops provided by Financial Aid, La Casa, Math Learning Center, Mental Health, UMOJA, Tutorial Services

Math 12/112

Instructors- Sarah Bahk (RCC), Kevin Baccari (Norco), Anthony Castro (RCC), Tommie Denson (RCC), Omar Mendez-Guerrero (RCC), Jillian Robertson (MVC)

- Used Statway methodology
 - Problem-based and student-centered learning model
- Embedded tutoring
- In class workshops provided by Financial Aid, La Casa, Math Learning Center, Mental Health, UMOJA, Tutorial Services

Summer Math Institute - Student Demographics

Ethnicity	N	%
African-American	48	18.2%
American Indian	1	0.4%
Asian	11	4.2%
Hispanic	174	65.9%
Two or More	7	2.7%
Unreported	4	1.5%
White	19	7.2%
Total	264	100%

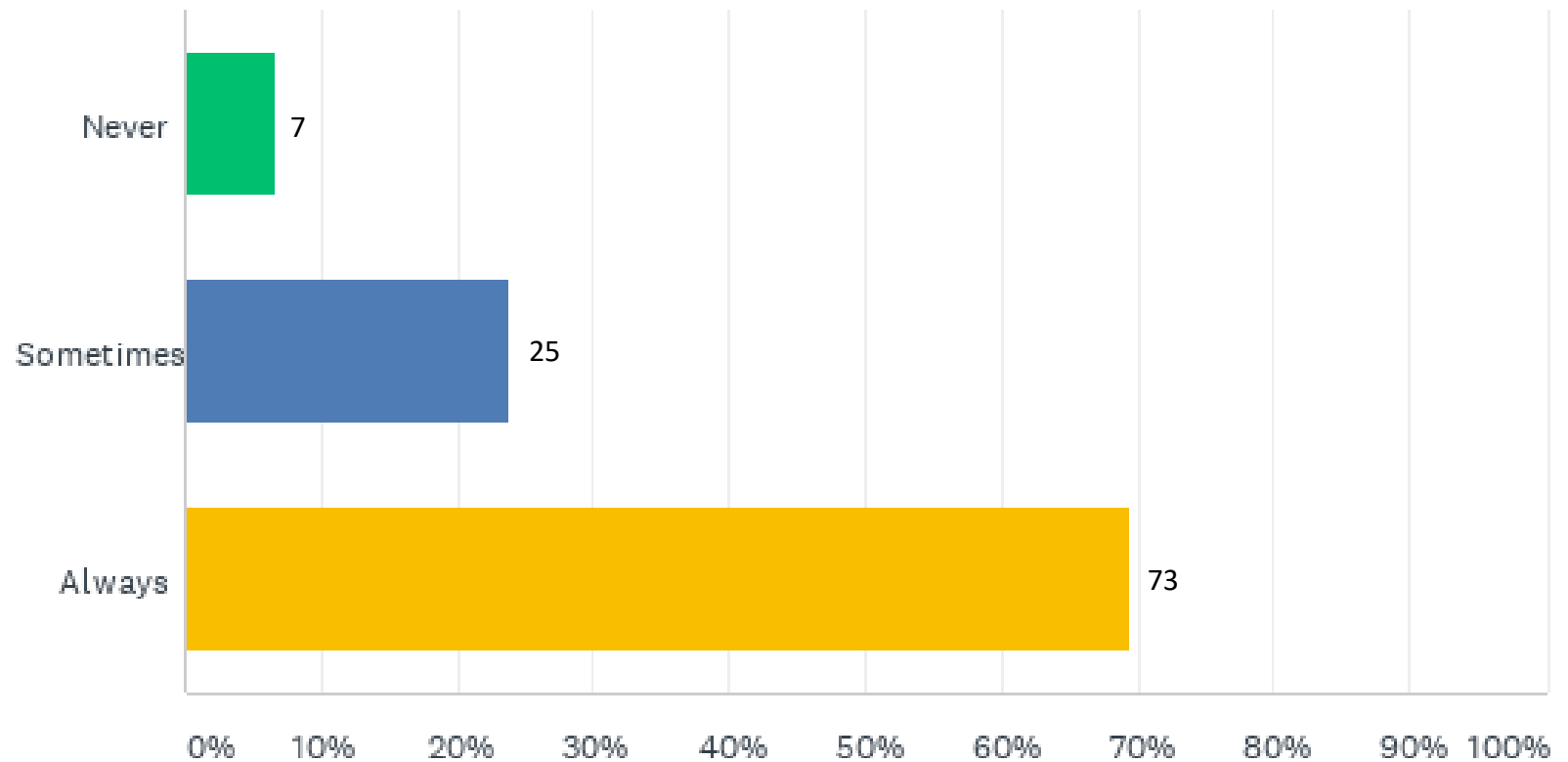
Gender	N	%
Female	176	66.7%
Male	85	32.2%
Non-Binary	1	0.4%
Unreported	2	0.8%
Total	264	100%

Age	N	%
<18	43	16.3%
18-26	154	58.3%
27-35	25	9.5%
36-44	26	9.8%
45-53	11	4.2%
54-62	5	1.9%
Total	264	100%

Student Survey Results

Q1: Reflecting on the Summer Math Institute classroom, how often did the classroom create an environment where you felt your perspective was valued?

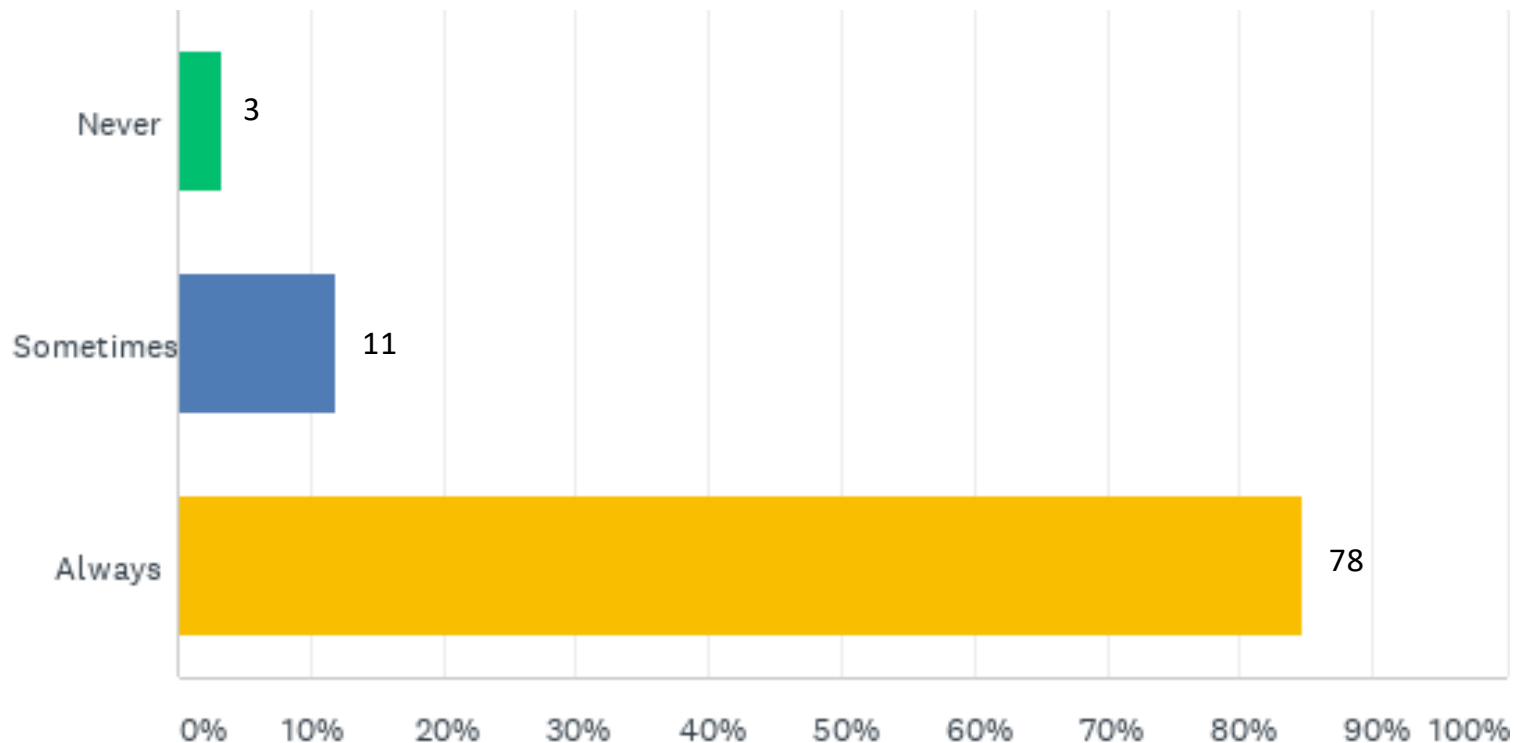
- Answered: 105 Skipped: 0



Student Survey Results

Q3: Reflecting on the Summer Math Institute classroom, how often did the classroom create an environment where you felt encouraged to succeed?

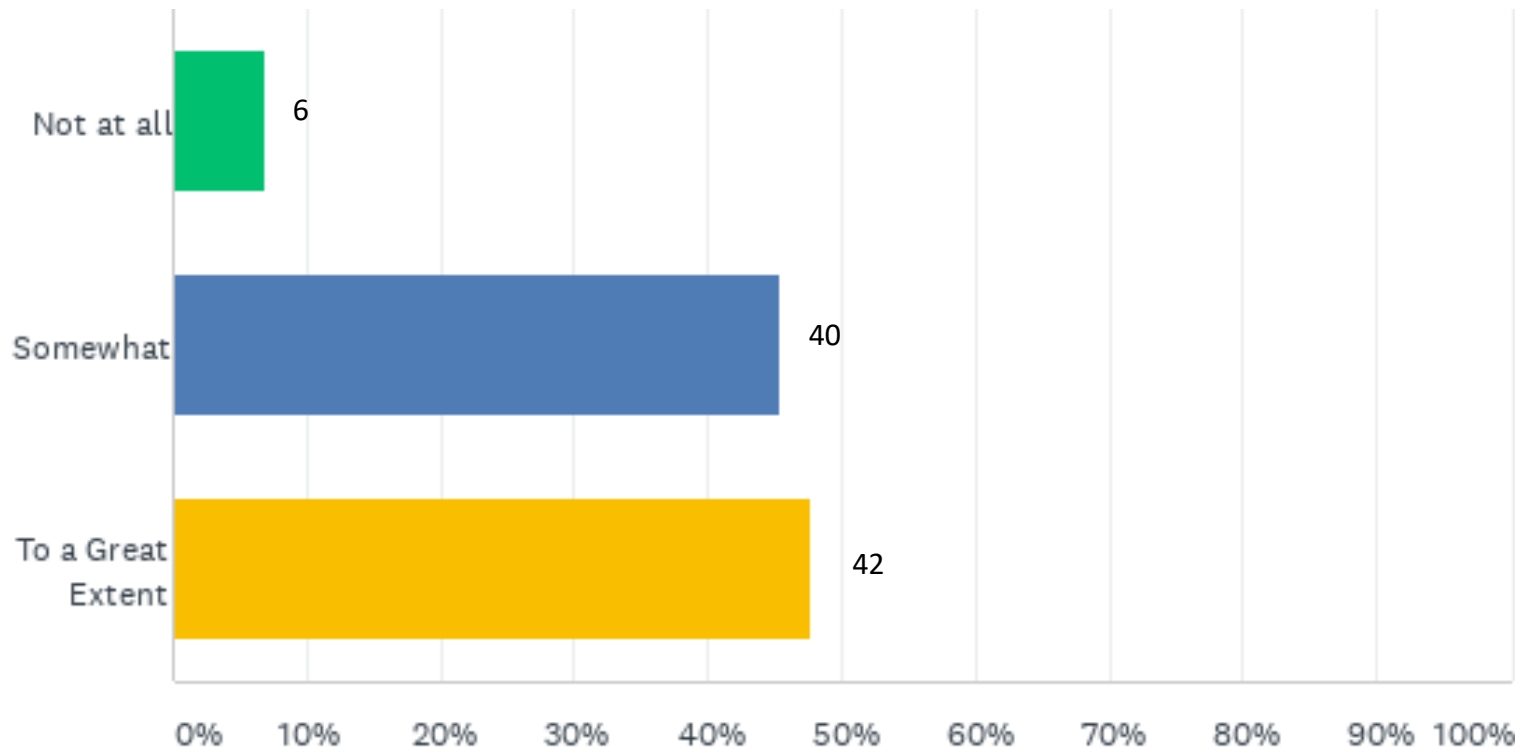
- Answered: 92 Skipped: 13



Student Survey Results

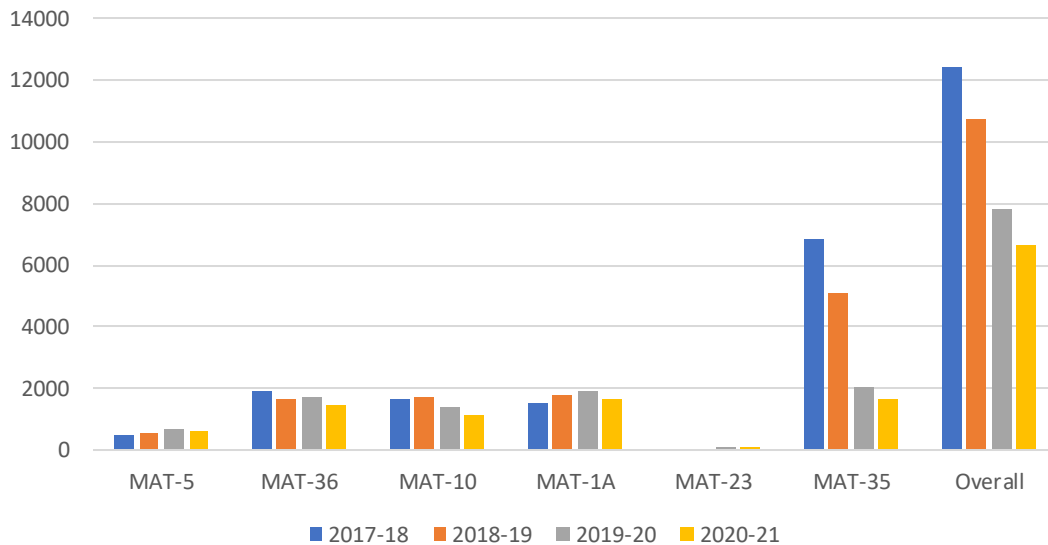
Q9: After completing the Summer Math Institute, has your belief in yourself to successfully complete a math course increased?

- Answered: 88 Skipped: 17

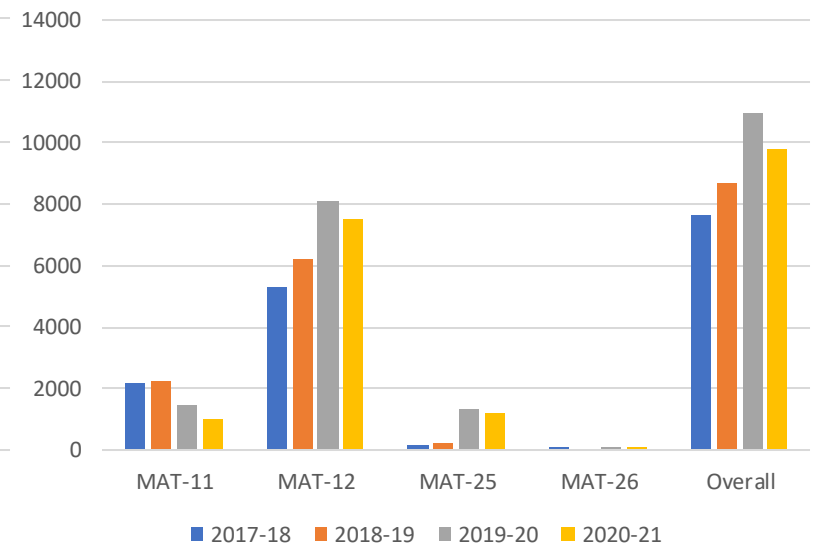


Math Enrollment Trends

BSTEM Enrollments: RCCD 2017-2021

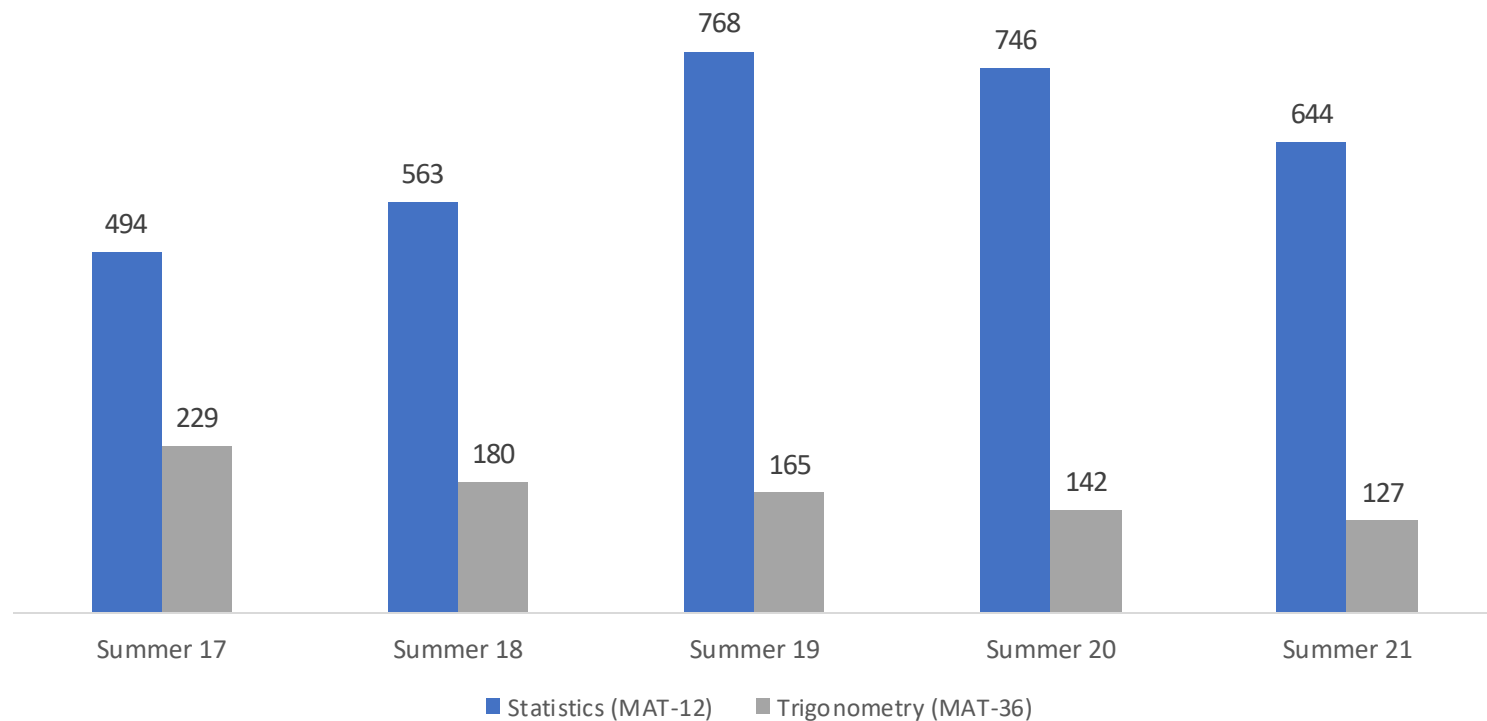


SLAM Enrollments: RCCD 2017-2021



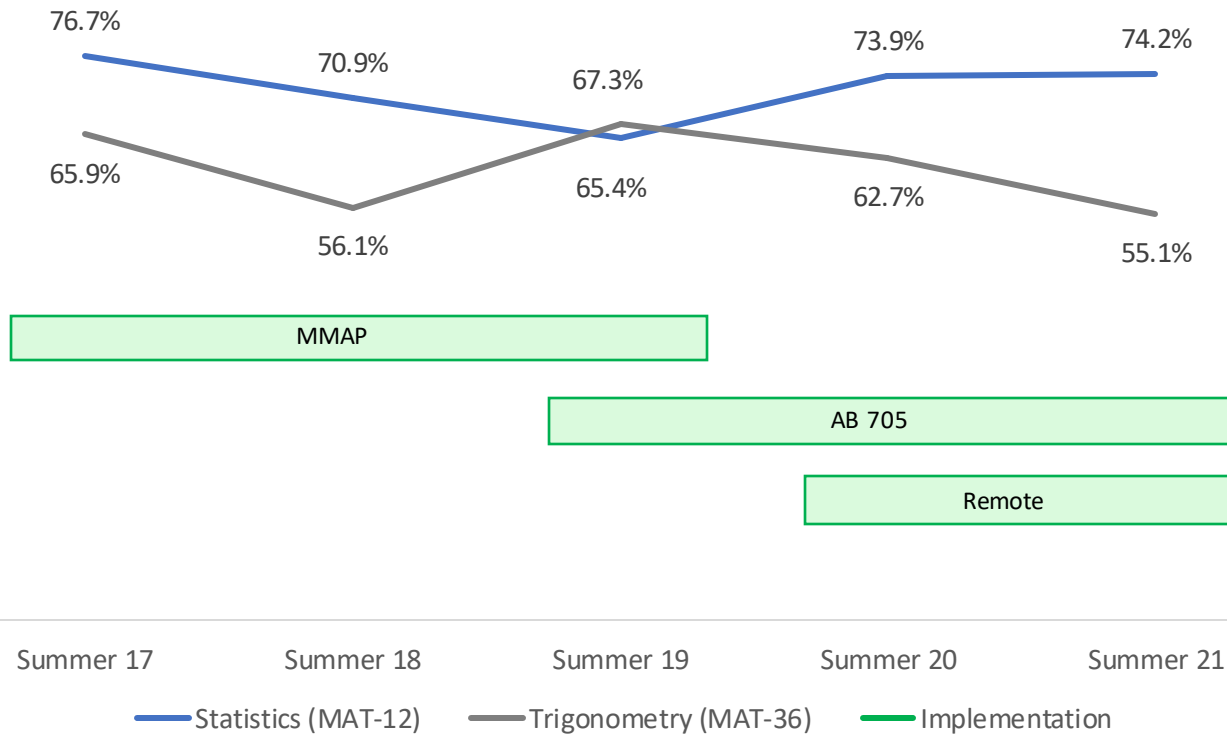
Historical Enrollment

Historical Enrollment: Statistics and Trigonometry Summer 2017-2021



Historical Math Success Rates

Historical Success Rates: Statistics and Trigonometry
 Summer 2017-2021



MAT-36 (Trigonometry) and MAT-12 (Statistics) Enrollment by Student Type

Course	Ethnicity	Continuing/ Returning	New	Total
MAT-12	African-American	40	3	43
	American Indian	1		1
	Asian	4	2	6
	Hispanic	122	9	131
	Two or More	6	1	7
	Unreported	3		3
	White	15		15
	Overall	191	15	206
MAT-36	African-American	5		5
	Asian	4	1	5
	Hispanic	41	2	43
	Unreported	1		1
	White	4		4
	Overall	55	3	58

Summer 2021 MAT-36 (Trigonometry) Enrollment and Success

Ethnicity	Overall SMI		Overall Non-SMI	
	Enrollments	Success Rate	Enrollments	Success Rate
African-American	5	40.0%	7	28.6%
Asian	5	100.0%	5	60.0%
Hispanic	43	48.8%	39	53.8%
Pacific Islander			1	0.0%
Two or More			4	100.0%
Unreported	1	0.0%	1	0.0%
White	4	100.0%	12	66.7%
Overall	58	55.2%	69	55.1%

Summer 2021 MAT-12 (Statistics) Enrollment and Success

Ethnicity	Overall SMI		Overall Non-SMI	
	Enrollments	Success Rate	Enrollments	Success Rate
African-American	43	72.1%	41	63.4%
American Indian	1	100%	1	100%
Asian	6	100%	48	85.4%
Hispanic	131	80.9%	261	68.6%
Two or More	7	57.1%	20	75.0%
Unreported	3	100%	6	50.0%
White	15	86.7%	61	80.3%
Overall	206	79.6%	438	71.7%

Qualitative Methodology

- Focus Groups
 - Faculty
 - Students
 - Black/ African American and Latinx Students
- Focus Group Protocol Items
 - Faculty
 - Impact of diversity & inclusion professional development
 - Impact of culturally-responsive pedagogical approaches
 - Recommendation of methods to increase Math success for African American/black and Latinx students
 - Students
 - Impact of incentives on enrollment/persistence
 - Perceptions of socialization, community, and validation
 - Recommendation of methods to increase Math success for African American/black and Latinx students

Focus Group Participants

Student Participant*	Courses	College	New/Currently Enrolled	Gender	Age	Ethnicity
Gustavo	MAT-36/136	Norco	New	Male	17	Hispanic
Jaden	MAT-12/112	Moreno Valley	Currently Enrolled	Male	39	African American
Lupita	MAT-36/136	Moreno Valley	New	Female	22	Hispanic
Richardo	MAT-36/136	Riverside	Currently Enrolled	Male	18	Hispanic
Chavonne	MAT-12/112	Riverside	Currently Enrolled	Female	17	African American
Daron	MAT-12/112	Riverside	New	Male	17	African American
Vanessa	MAT-12/112	Riverside	New	Female	19	Hispanic
Jesus	MAT-12/112	Riverside	Currently Enrolled	Male	18	Hispanic
Skylar	MAT-12/112	Riverside	New	Female	17	African American

*Pseudonym used in lieu of students' names.

Qualitative Inquiry Findings

Emergent Themes
<p>Will graduating and currently enrolled African-American/Black and students enroll and successfully complete an intensive summer math course given appropriate incentives and supports?</p> <p>Enrollment and Completion Themes:</p> <ul style="list-style-type: none"> ▪ Enrollment: Financial incentives are helpful ▪ Enrollment: Students will enroll if they believe they need the course ▪ Completion: Embedded Tutoring was helpful in completing ▪ Completion: Students will complete if they believe that they finish what they start <p>Multicultural Domain Themes:</p> <ul style="list-style-type: none"> ▪ Sense of Belonging: Group collaboration fostered a sense of belonging ▪ Socialization: Students gained awareness of challenges associated with college courses ▪ Validation: Students felt validated when professors were meaningfully engaged
<p>What are the pedagogical lessons learned that can be applied to math courses in future terms?</p> <p>Pedagogical Themes:</p> <p>Faculty report multiple pedagogical activities that can be employed in the future.</p> <ul style="list-style-type: none"> ▪ Embedded Workshops ▪ Student Groups ▪ Affective Domain ▪ Embedded Tutoring
<p>Does culturally relevant and equity-minded pedagogical approaches increase student success and decrease equity gaps? And suggestions to increase math success?</p> <p>Equity-Specific Themes:</p> <ul style="list-style-type: none"> ▪ “I don’t really care about race”: Students avoid race-focused prompts ▪ Faculty avoid using race-specific language ▪ Faculty use few race-specific pedagogical suggestions to increase math completion

Lessons Learned & Next Steps

- Incentives showed promise
- Higher enrollment in Statistics (206) vs. Trigonometry (58)
- Statistics had a higher course success rate for SMI
- Create a space for brave and honest conversations about equity
- **Future research:** Did the Statways curriculum have an impact on course success rate?
- Present findings to math discipline and complete longitudinal research
- Apply lessons learned to future work to make math accessible and successful for minoritized students

Presentations for Sharing Lessons Learned

- Presentation to SMI Instructors
 - September 17, 2021
- Presentation to SMI Project Development Team
 - September 21, 2021
- Chancellor's Cabinet
 - September 27, 2021
- Final Presentation to Board of Trustees
 - October 5, 2021
- Presentation to Math Discipline – TBA for Oct/Nov 2021



RCCD

RIVERSIDE COMMUNITY
COLLEGE DISTRICT

MORENO VALLEY COLLEGE | NORCO COLLEGE | RIVERSIDE CITY COLLEGE

Q & A



Summer Math Institute

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