Results from the De Anza College Math Performance Success (MPS) Program

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Overview of the Program

- Cohort - three quarter math sequence
  - Elementary Algebra (Math 101)
  - Intermediate Algebra (Math 105)
  - Elementary Stats / Probability (Math 10)
  - Students have shown previous math difficulties, including repeated attempts and failure
  - Must apply to the program
- Double the classroom time
- Instruction / Counseling collaboration
- Peer tutoring

Impact on Students in the Classroom

- Same content and material to be mastered
  - Same faculty teach both MPS and Non MPS sections
- Faculty/Counselor partnership provides immediate intervention if a student falls behind
- Twice as many contact hours
  - Opportunity for hands on work
  - Build self confidence

Research Questions

Given that the same content and material must be be mastered:

1. How do the grades of students in the MPS program compare with the grades for students not in the program for the same course and term? (Assumption of grades as an indicator of student learning).
2. Do MPS students starting in Math 101 persist through to higher level math courses at a higher rate than students not in the program?

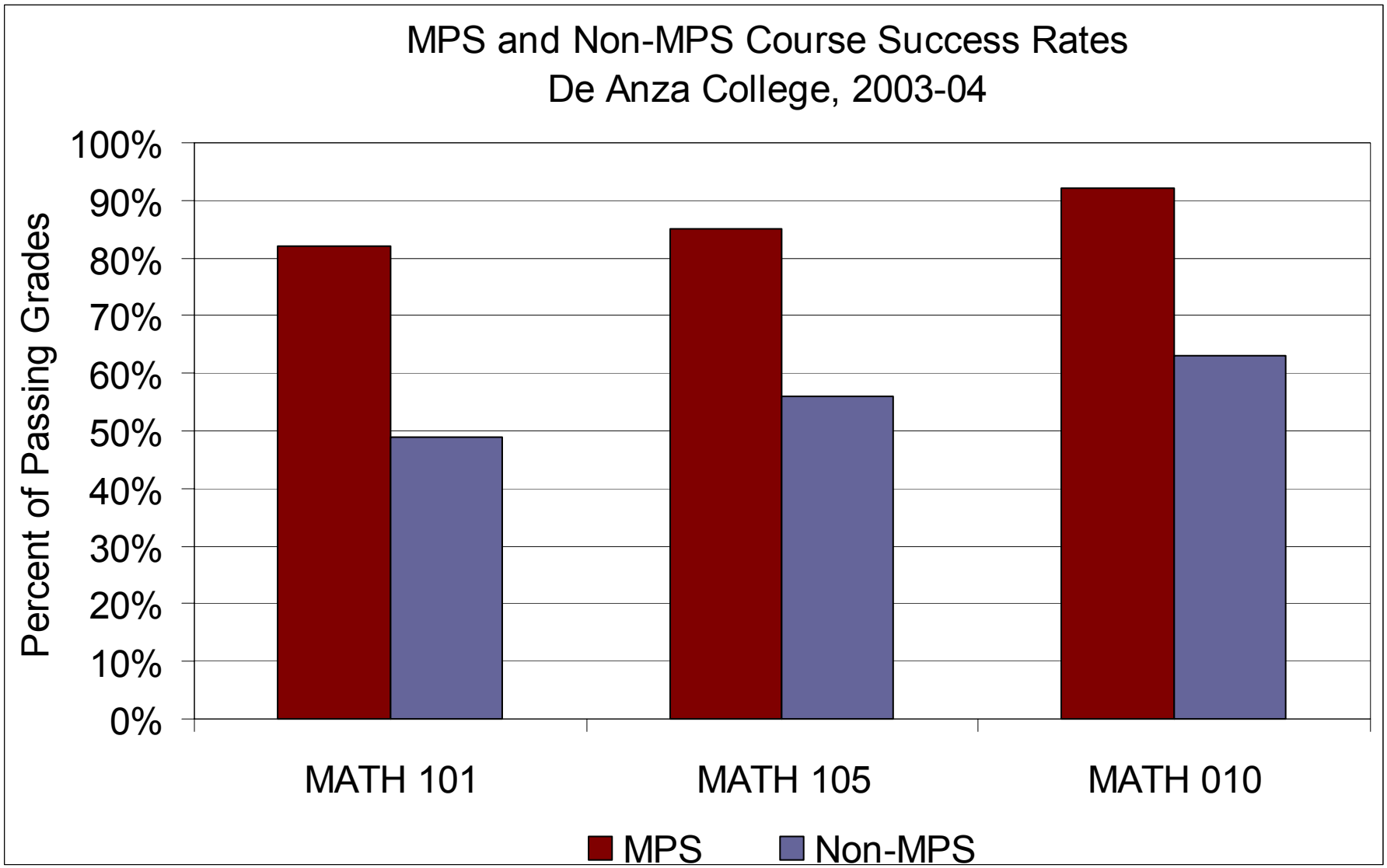
Summary of Research Findings

MPS and Non-MPS Sections					
Number of Sections and Course Enrollment					
De Anza College, 2003-04					
Course	Term	Type	Sections		Students
MATH101	Fall 2003	MPS	2		76
		Non-MPS	21		725
MATH105	Winter 2004	MPS	2		80
		Non-MPS	24		912
MATH010	Spring 2004	MPS	2		73
		Non-MPS	23		825
Source: End of Term Enrollment File.					

Summary of Research Findings

MPS and Non-MPS Section Student Ethnicity By Percentage of Course Enrollment De Anza College, 2003-04									
Course	Type	Asian	African American	Filipino	Hispanic	Native American	Pacific Islander	White	Other
MATH101	MPS	5%	9%	8%	43%	3%	1%	13%	17%
	Non-MPS	16%	5%	8%	22%	1%	2%	29%	17%
MATH105	MPS	5%	13%	8%	46%	1%	1%	15%	11%
	Non-MPS	25%	4%	10%	16%	1%	1%	26%	16%
MATH010	MPS	11%	11%	10%	41%	1%	1%	14%	11%
	Non-MPS	41%	2%	7%	8%	1%	1%	21%	19%
Source: End of Term Enrollment File.									

Summary of Research Findings



Summary of Research Findings

Math 101 Student Persistence
Thru Math 105, One and Two Years
MPS and Non-MPS Students

		One Year Persistence		Two Year Persistence *	
Attempted Math 101 Fall 2002		Passed Math 105 Thru Fall 2003		Passed Math 105 Thru Fall 2004	
Group	Students	Students	% Cohort	Students	% Cohort
MPS	52	44	85%	48	92%
Non-MPS	739	352	48%	395	53%

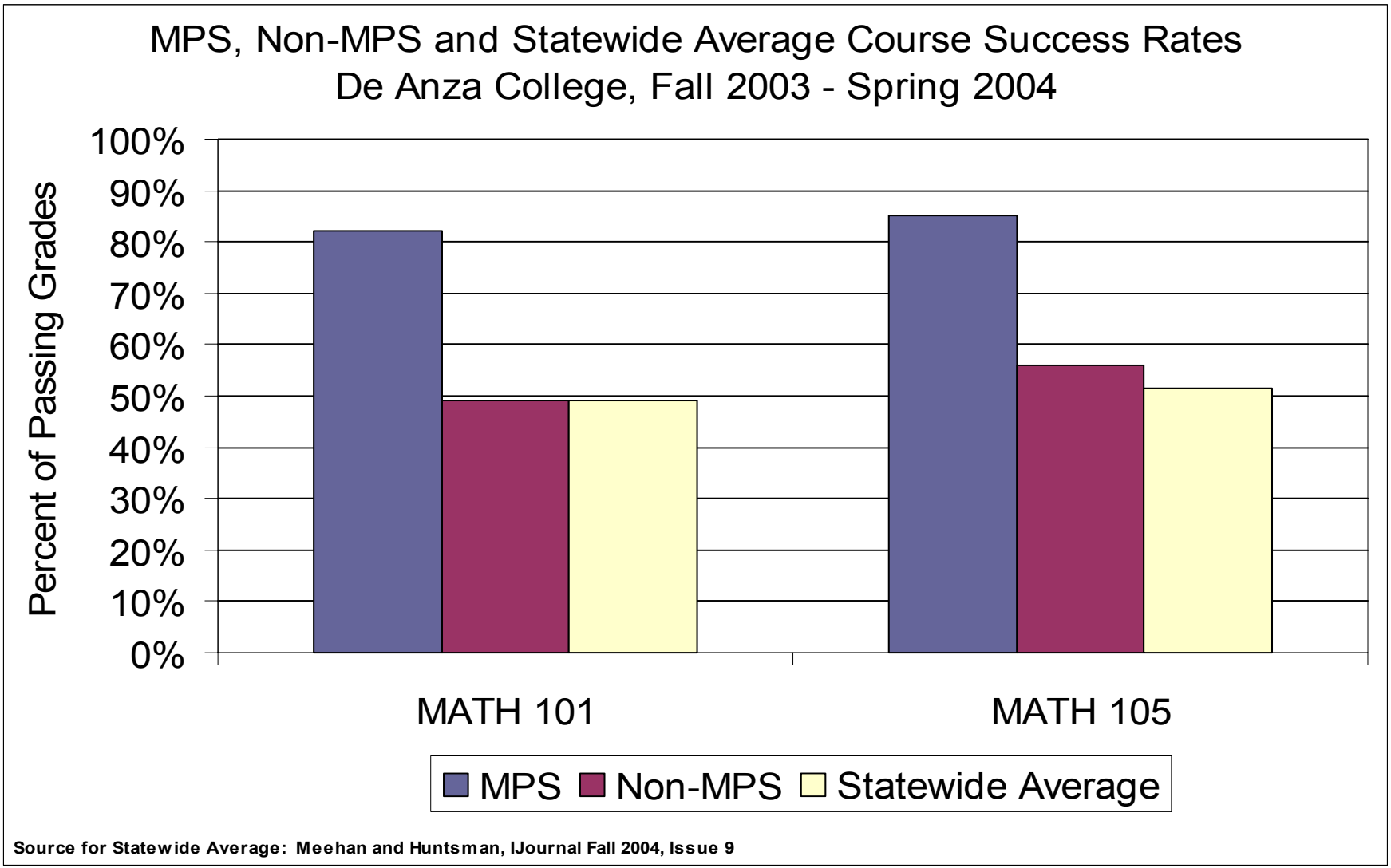
*Many Non-MPS students take Math 105 several quarters after Math 101.

Summary of Research Findings

MPS and Non-MPS Students Succeeding in Math 101 Fall 2004, Success in Math 105 Winter 2004
By Grade in Math 101, De Anza College

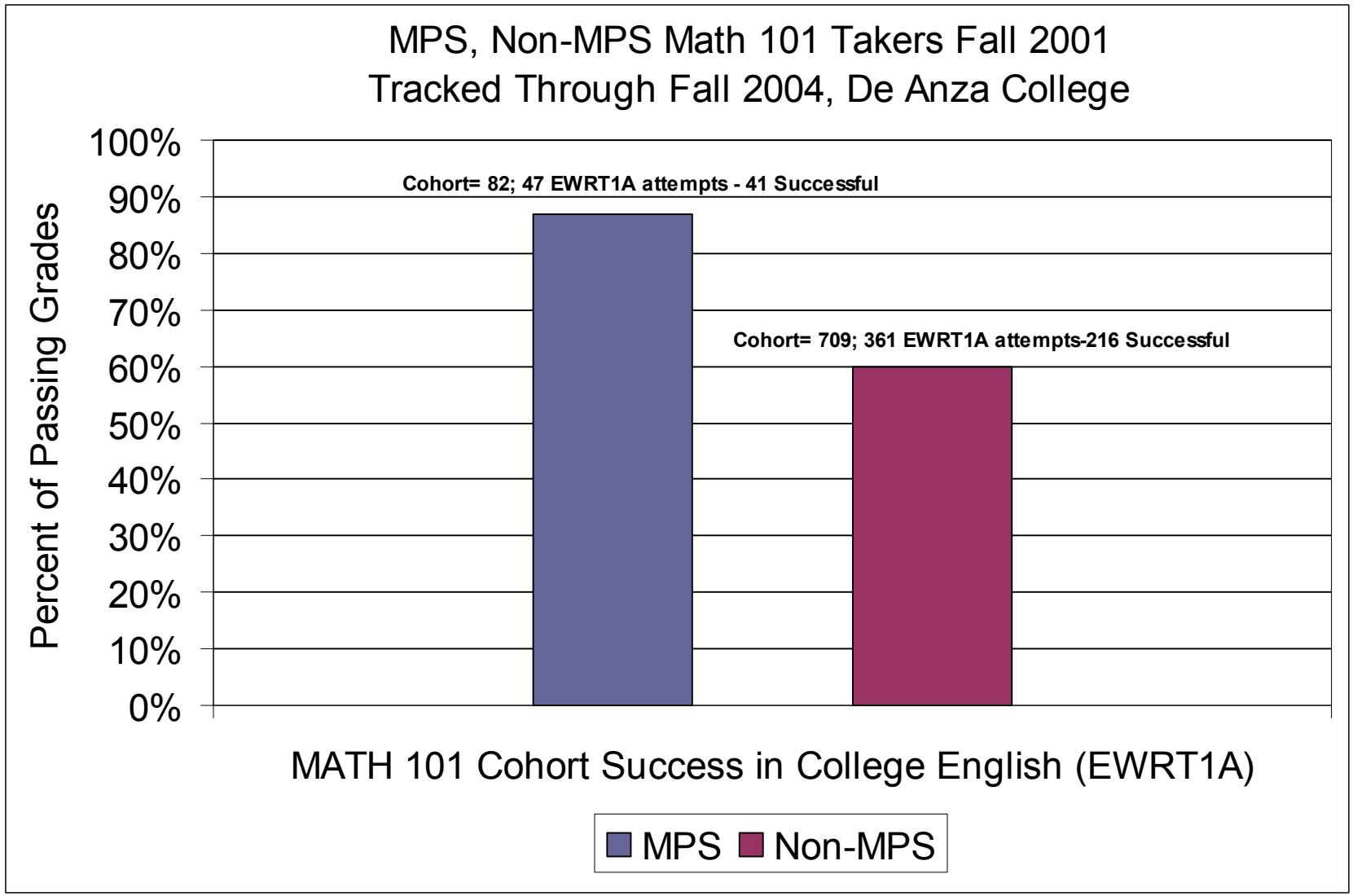
	MPS Students			All Other Students		
Grade Math 101 Fall 2004	Number - Math 101 Fall 2004	Percent Attempting Math 105 Winter 2004	Percent Successful in Math 105 Winter 2004	Number in Cohort - Math 101 Fall 2004	Percent Attempting Math 105 Winter 2004	Percent Successful in Math 105 Winter 2004
A	20	100%	100%	99	77%	83%
B	24	92%	86%	101	81%	61%
C	13	85%	64%	128	72%	39%

Summary of Research Findings



Source for Statewide Average: Meehan and Huntsman, IJournal Fall 2004, Issue 9

Summary of Research Findings



Summary of Research Findings

"Students in MPS develop a higher level of self-confidence once they are successful in math. This increase in self-confidence carries over to other classes they are taking. In short, MPS students' success in Math helps them to develop the skills, attitudes and self-confidence necessary to be successful in their other classes."

Herminio Hernando, Councelor for MPS

Program Costs

- Additional faculty time (double the load)
  - But double the contact hours generated for state aid
- Dedicated counselor time (15 hours per week – estimated at $25,000 per year)
- Peer tutoring dollars spent ($10,000 per year)

☑ Students in the program had a much higher success rate than other students.

☑ It costs twice as much per student to produce higher rates of learning.

Best Practices Validated by the Research

- Cohort development and course sequencing
  - Could benefit students in Math 51, 49A, 49B sequence
- Additional student time on task
  - Pilot the addition of 1-2 hr lab component
  - Use research to find optimum arrangement
- Instructional / student support relationship
  - Develop learning skills in first course
  - Holistic approach to building confidence

Research Contribution

- This research demonstrates that the program is achieving results in terms of student success
- Provides justification for program continuance or expansion
- The research provides a baseline of data to monitor changes over time
- Contributes to the ‘Body of Evidence’ examining student success

Thanks

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