



*Predicting Career Aspirations and University Majors
from Academic Ability and Self-concept: A Longitudinal
Applications of the Internal-External Frame Of
Reference Model*

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◆ Aims

- Is 'math achievement as a critical filter' sufficient for predicting university majors and career aspirations, and to explain gender differences?
- Are both achievement and self-concept necessary for explaining university majors and career aspirations?
- Do models of university majors and career aspirations need to account for domains other than math?
- Do academic self-beliefs formed in school predict later achievement domain choices?



◆ Introduction

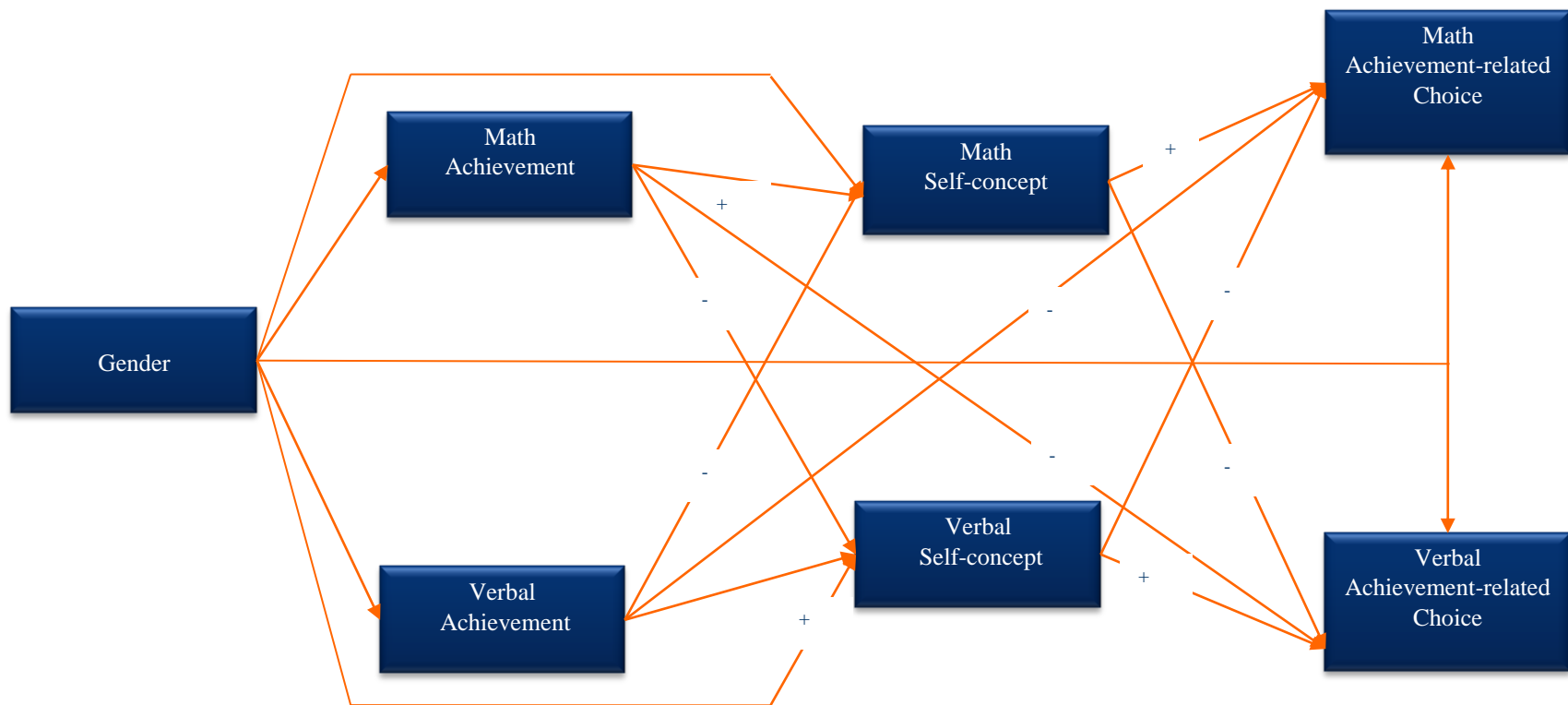
- Math achievement as a critical filter to university majors and career aspirations.
- Gender and mathematics
- Self-concept, and academic and career choice
- Importance of multiple domains
- The internal/external frame of reference as a predictor of university majors and career aspirations



- ◆ Current Study
 - Model tested
 - Participants
 - Methodology



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◆ Current Study

- Model tested

- **Participants**
 - TOSCA program
 - Gymnasium
 - Longitudinal: T1 – School; T2 – University (n=1881)

- Methodology



◆ Current Study

- Model tested
- Participants
- **Methodology**
 - Hierarchical multinomial
 - Latent variables
 - Nested errors



◆ Preliminary Findings

	Males		Females		Cohen's D
	Mean	SD	Mean	SD	
Math Self-concept	2.84	.81	2.55	.83	-.35***
English Self-Concept	2.92	0.82	2.87	0.86	-0.06
English Achievement	.17	.99	-.13	.98	-.31***
Math Achievement	.19	.91	-.22	.87	-.46***

	Percentage Male		Percentage Female		Odds Ratio: Males	
	Aspire	UM	Aspire	UM	Aspire	UM
PME	44.8	47.4	7.0	17.0	10.8	4.4
Biology/Medical	15.0	10.3	21.3	12.7	0.7	0.8
Humanities	26.0	16.8	55.7	44.2	0.3	0.3
Law/Business	14.2	25.5	16.0	26.1	0.9	1.0



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◆ Preliminary Findings

University Majors Percentage

Career

Aspirations

Percentage

PMES

BMS

Law/Business

Humanities

PMES

90.0

4.7

2.1

3.2

BMS

17.2

55.6

13.6

13.6

Law

15.6

5.6

68.2

10.6

Hum

6.0

2.2

9.0

82.8



◆ Preliminary Findings

University Majors Percentage

Career

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Percentage

PMES

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Law/Business

Humanities

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90.0

4.7

2.1

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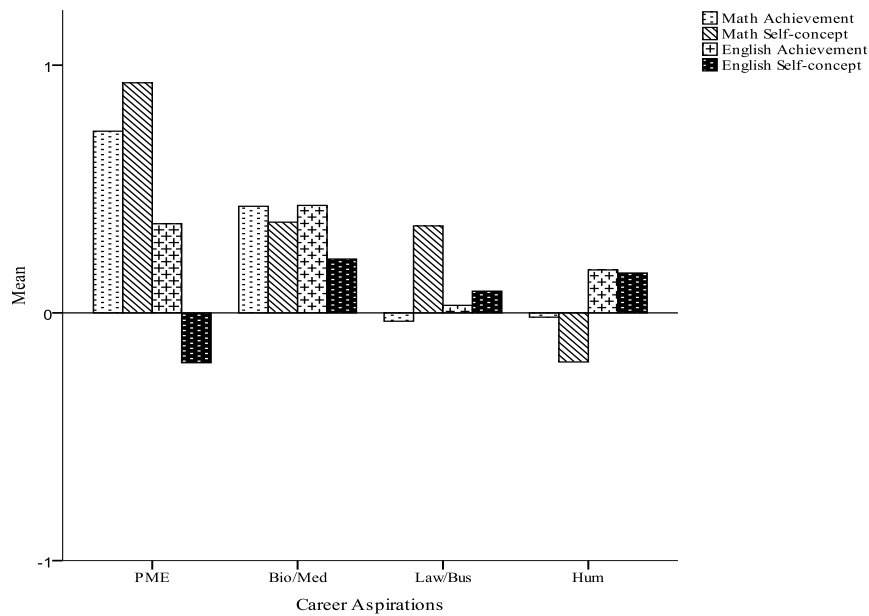


◆ Preliminary Findings

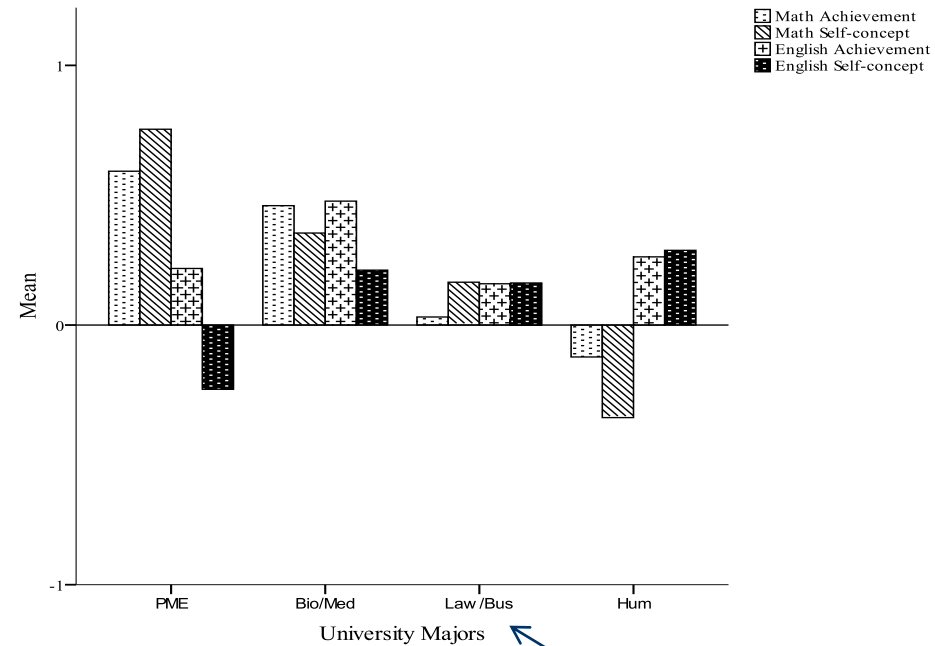
Career Aspirations Percentage	University Majors Percentage			
	PMES	BMS	Law/Business	Humanities
PMES	90.0	4.7	2.1	3.2
BMS	17.2	55.6	13.6	13.6
Law	15.6	5.6	68.2	10.6
Hum	6.0	2.2	9.0	82.8



◆ Preliminary Findings



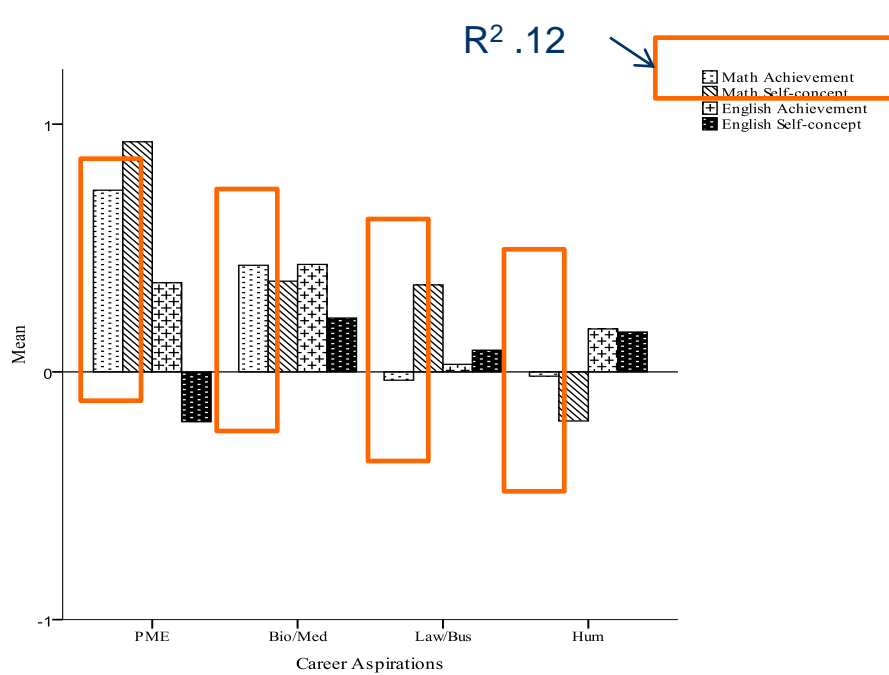
Career Aspirations



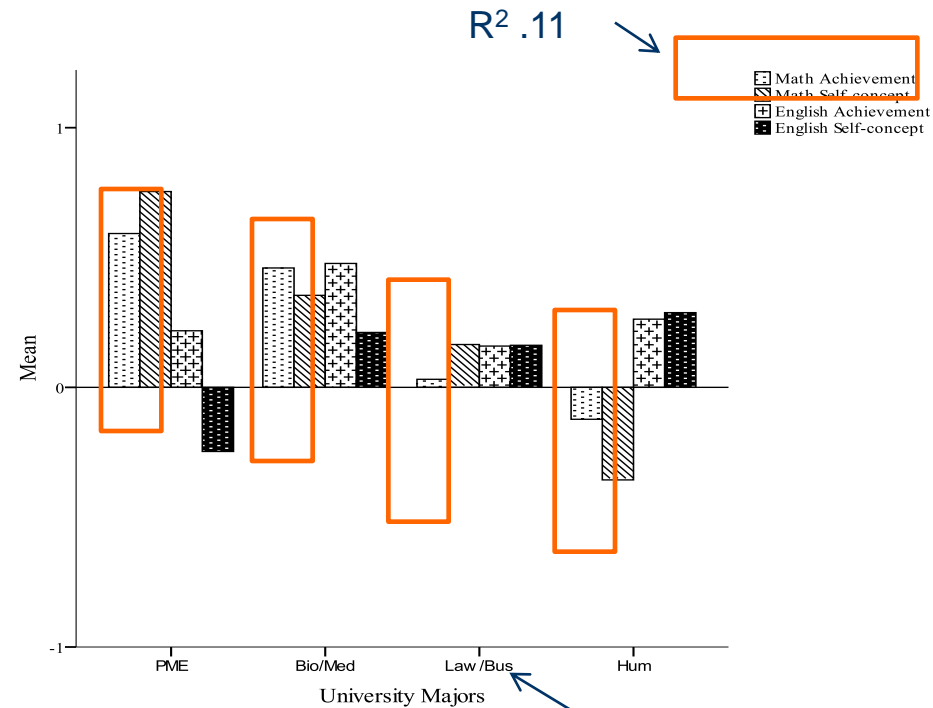
University Majors



◆ Preliminary Findings



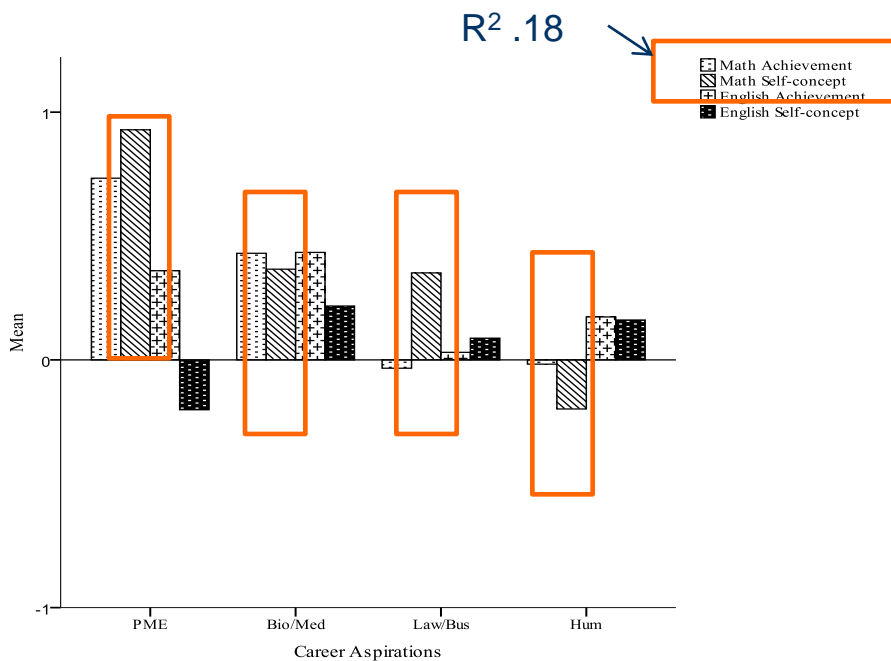
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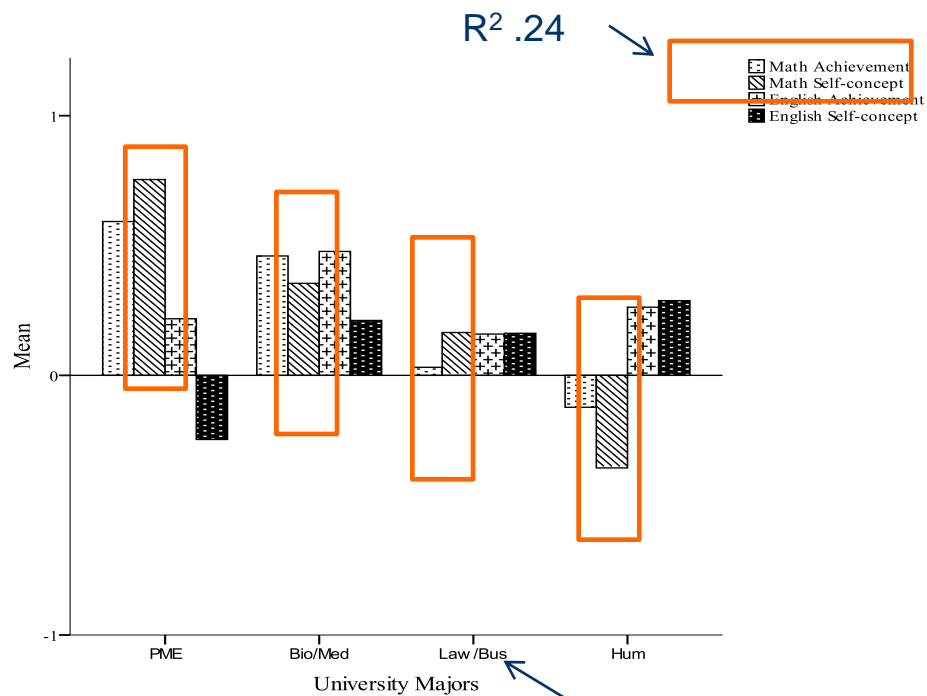
University Majors



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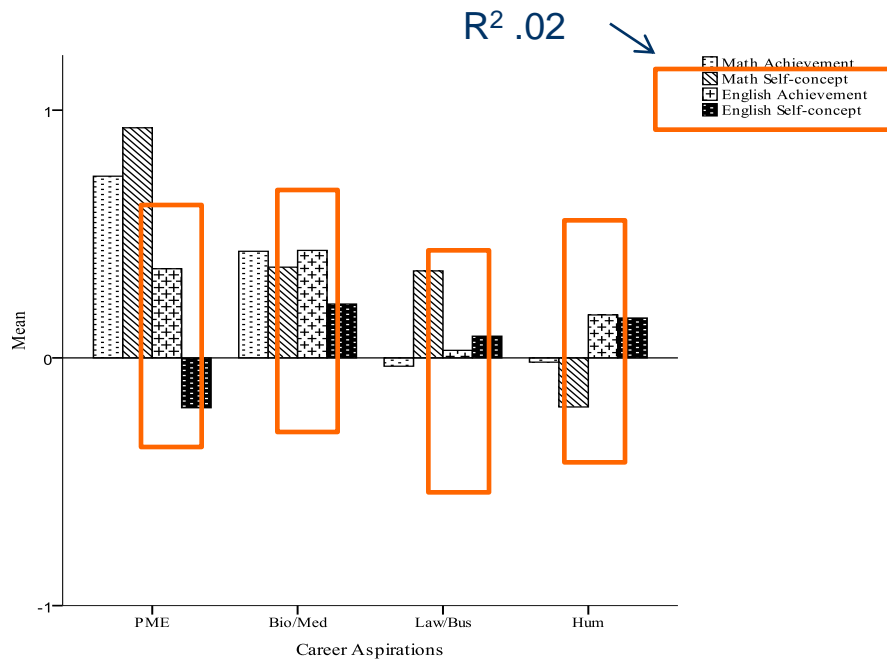
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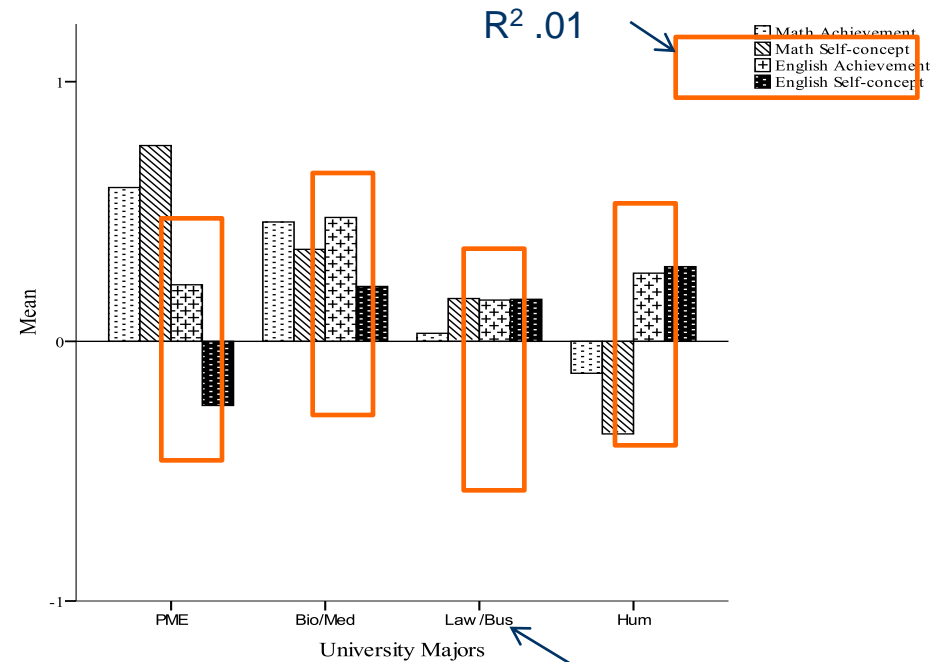
University Majors



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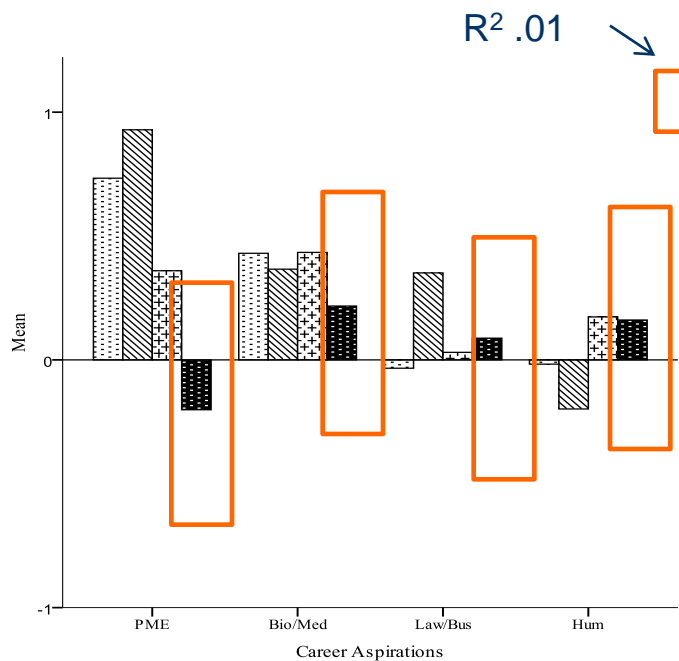
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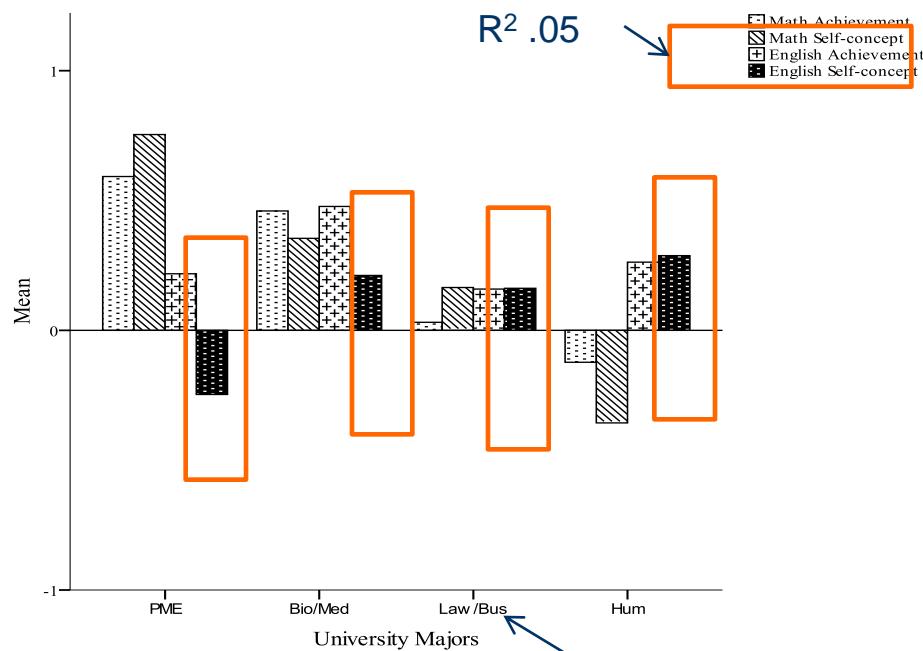
University Majors



◆ Preliminary Findings



Career Aspirations



University Majors



◆ Model Findings

	Step 1			Step 2			Step 3		
	Bio	Law	Hum	Bio	Law	Hum	Bio	Law	Hum
	<u>Career Aspirations</u>								
Gender (F=1)	2.66***	2.98***	3.66***	2.40***	3.00***	3.42***	2.46***	3.07***	3.47***
Math Test				.37***	.64**	.36***	.50***	1.12	.86
English Test				1.14	1.48**	1.41**	.74	.99	.92
Math SC							.71	.45***	.27***
English SC							1.92**	1.67**	1.52**



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Math Test				.45***	.76**	.36***	.68***	1.15	.83
English Test				1.33***	1.64***	1.73***	.86	1.19	1.08
Math SC							.59***	.53***	.28***
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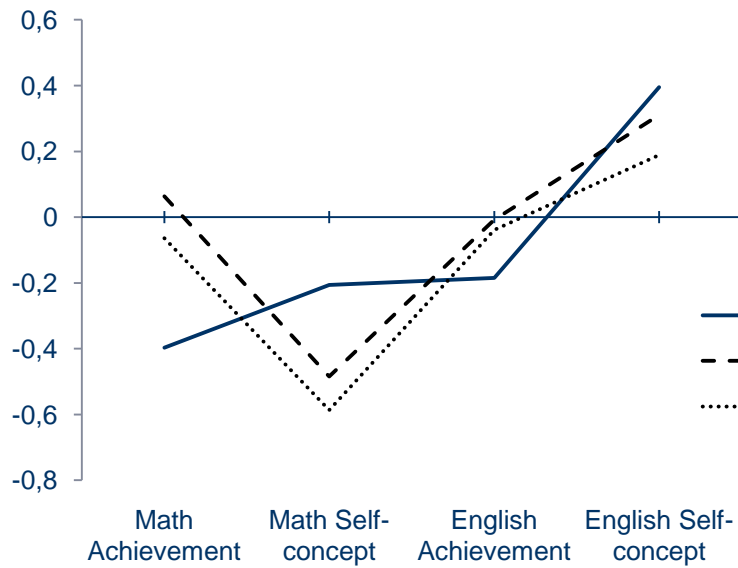


◆ Follow up Invariance Findings

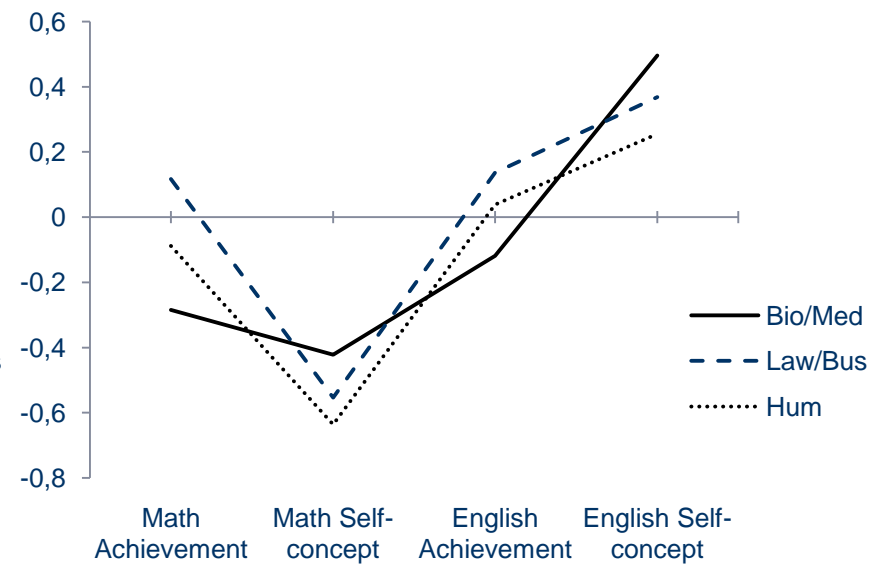
Constrained Parameters	<i>df</i>	Difference Test	
		Career Aspirations	University Majors
All Parameters Constrained	14	184 ***	342***
Biological/Medical Sciences and Law/Business Constrained	9	99 ***	147***
Humanities and Biological/Medical Sciences Constrained	9	169***	321***
Humanities and Law/Business Constrained	9	167***	321***



◆ Follow up Invariance Findings



Career Aspirations



University Majors



◆ Aims

- Is 'math achievement as a critical filter' sufficient for predicting university majors and career aspirations to explain gender differences?
 - Math Self-concept rather than achievement was the strongest and most consistent predictor
 - There were clear gender differences in both English and math achievement and self-concept that were consistent with the model and the gender differences in career aspirations and university majors.
- Are both achievement and self-concept necessary for explaining university majors and career aspirations?
 - Self-concept appears to mediate the effect of achievement on career aspirations and university major selection.
- Do models of university majors and career aspirations need to account for domains other than math?
 - There were clear and significant ipsitive effects between math and verbal domains.
 - Both math and English domains were important in predicting career aspirations and university majors
- Do academic self-beliefs formed in school predict later achievement domain choices?
 - The longitudinal nature of the study indicates self-concept variables and processes may be important for long-term career relevant outcomes.