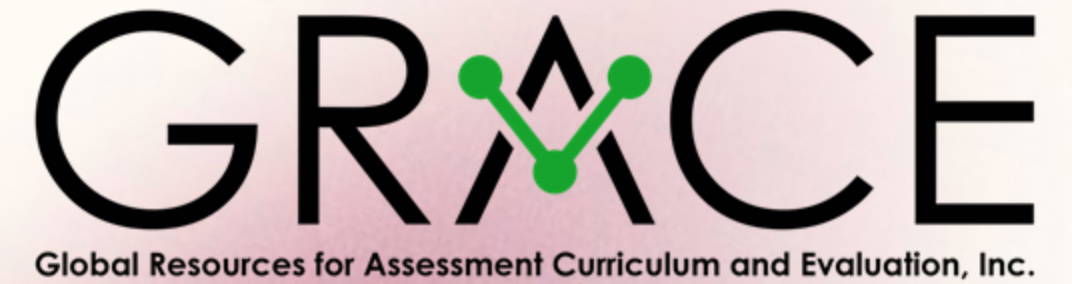




PHILIPPINE EDUCATIONAL MEASUREMENT AND  
EVALUATION ASSOCIATION, INC.



# Predictors of Students' Achievement Scores During Pandemic and Post-Pandemic

Dela Cruz, Theresse M.; Papa, Pia Marie Therese P.; Atentar, Arnelli B.; Navarrete, Jillian S.;  
Dela Cruz, Rose Arvie R.; Bringas, Samantha Mae A.; and Velasco, Christel Joy T.

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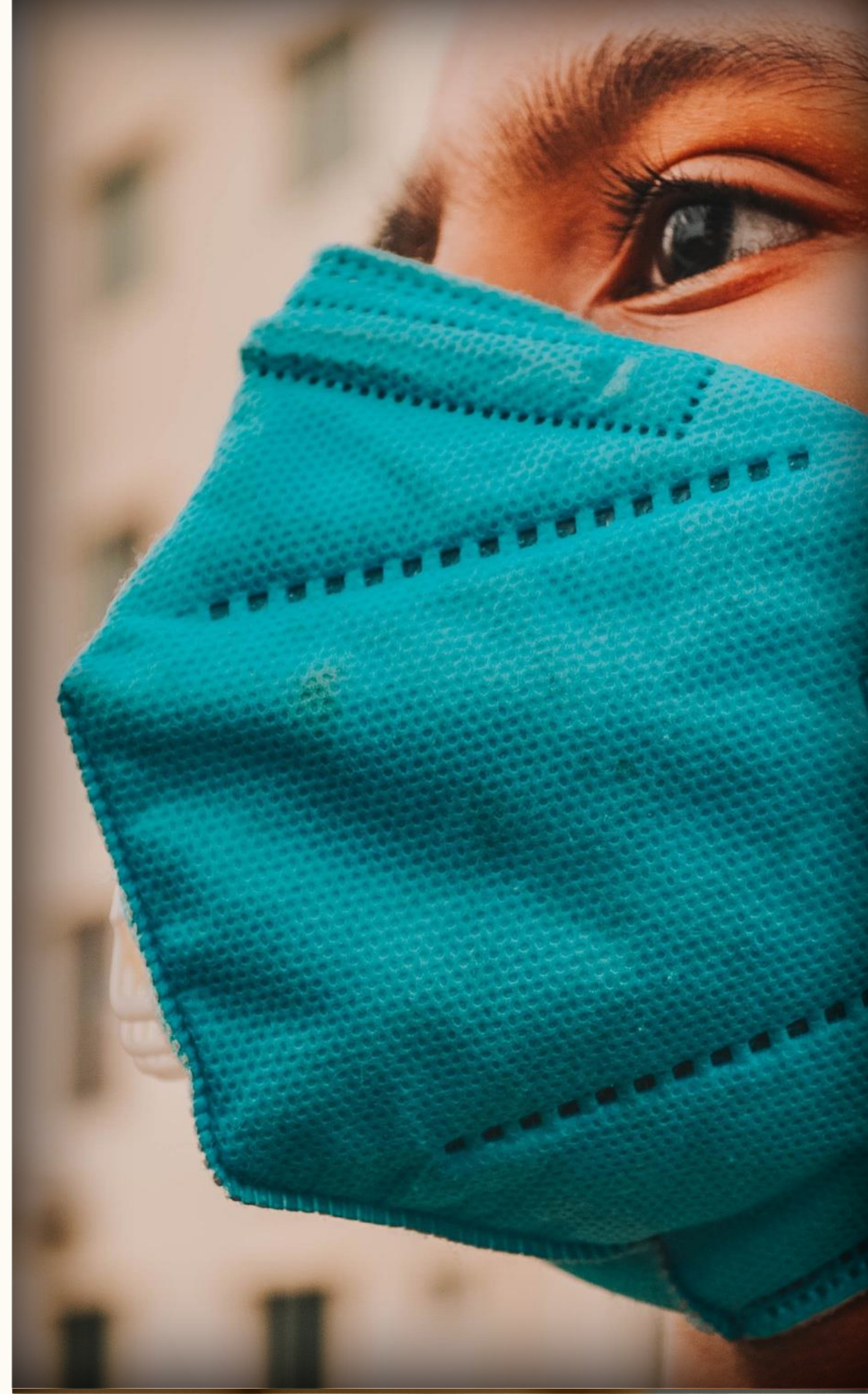
**ARNELLI ATENTAR, RPm**

**August 25, 2023**

Presenter

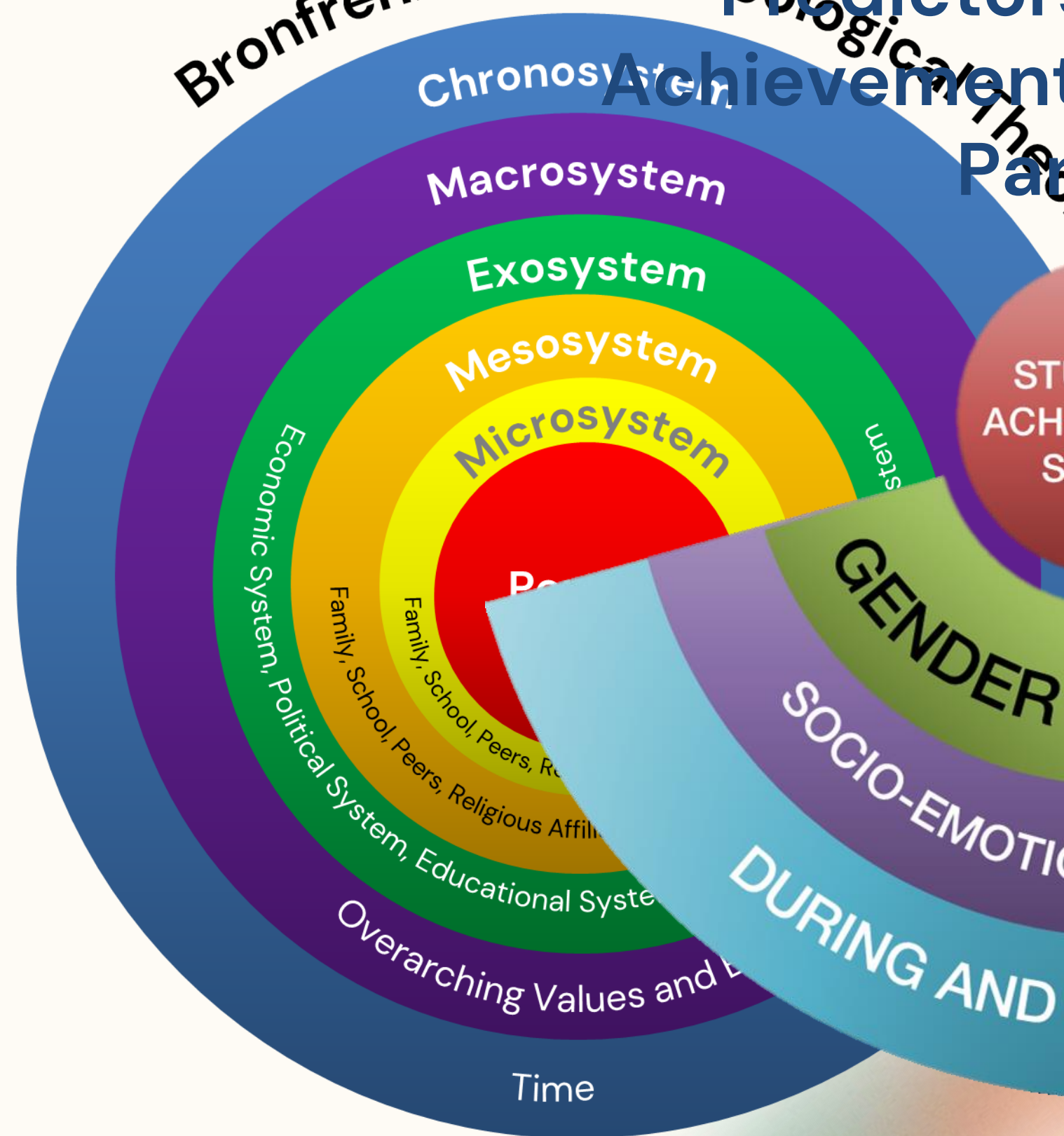
# Introduction

- Learning poverty refers to “being unable to read and understand a simple text by age 10,” (de Vera, 2021).
- Performance of Filipino students in several International Large-Scale Assessments (ILSA)
  - Programme for International Student Assessment (PISA)
  - Southeast-Asia Primary Learning Metrics (SEA-PLM)
  - Trends in International Mathematics and Science Study (TIMSS)
- The learning poverty may have been amplified by the pandemic



# Predictors of Students' Achievement During and Post Pandemic

Bronfenbrenner's Ecological Theory



STUDENTS' ACHIEVEMENT SCORES



## SOCIAL AND EMOTIONAL LEARNING



# Predictors of Students' Achievement During and Post Pandemic

- **Grade level** – the segmentation of students into different groups: elementary, junior high school, senior high school
- **Gender** – the socially-constructed characteristics of men and women that include norms and associated behaviors (World Health Organization, 2019)
- **Socio-emotional learning** – the process of enhancing characteristics integral to education and human development (CASEL, 2013)
  - **Self-awareness** – abilities to understand one's own emotions, thoughts, and values and how they influence behavior across contexts
  - **Self-management** – abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations
  - **Self-regulation** – self-directive process by which learners transform their mental abilities into academic skills
  - **Grit** – passion and perseverance for long-term goals
  - **Social Skills** – abilities to understand the perspectives of and empathize with others, as well as to establish and maintain healthy and supportive relationships including those from diverse backgrounds, cultures, & contexts

# Statement of the Problem

1. How did the pandemic affect students' achievement scores?
2. How did the predictors determine students' achievement scores during the pandemic and in post-pandemic?

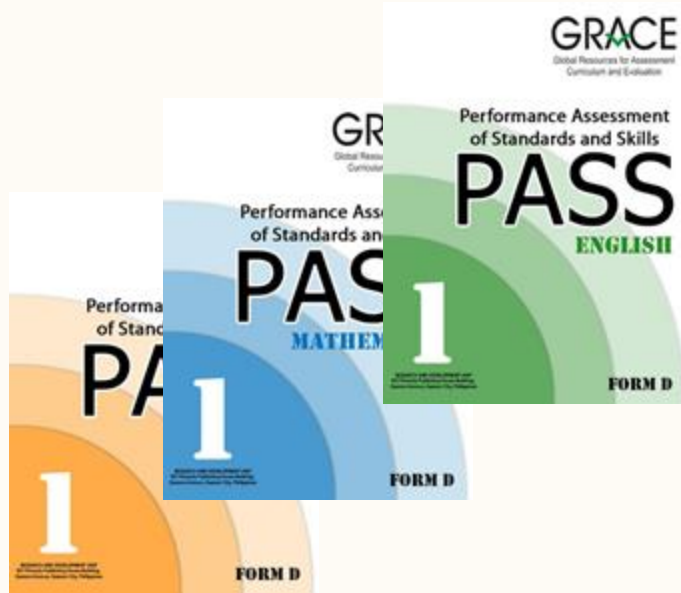
# Significance of the Study

1. To determine the areas of strength and weakness of Filipino students
2. To further understand the noncognitive factors of learning
3. To give recommendations for teachers, school administrators, and future researchers

# Hypotheses

- There is a significant relationship between age, gender, and socio-emotional competence, and students' academic achievement
- The pandemic has an impact on the students' achievement.

# Methodology | Instrument



## Performance Assessment of Standards and Skills English, Math, Science

- Cronbach Alpha= 0.6–0.8
- Item Difficulty= Average–Very Difficult

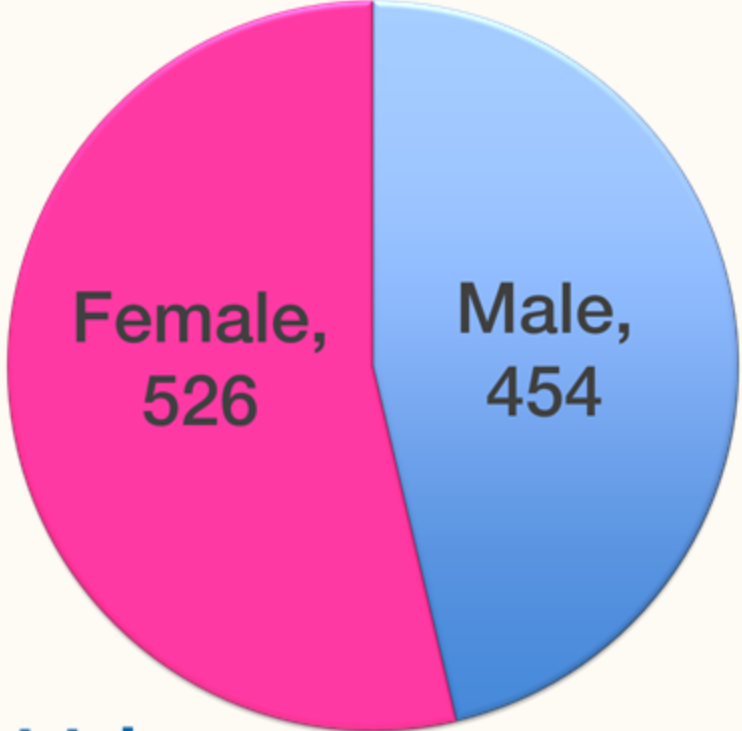


## Assessment of Social and Emotional Competence

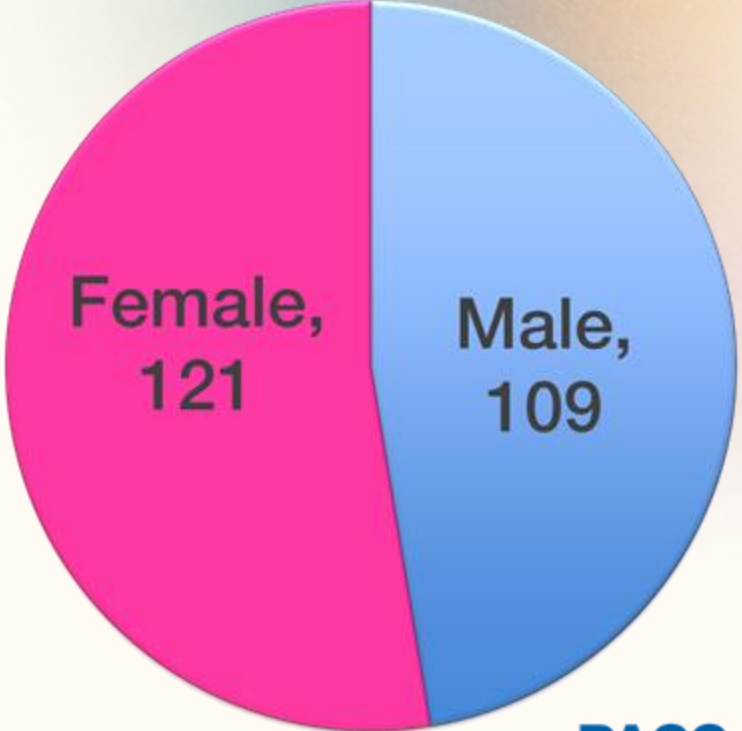
- Self-awareness
- Self-management
- Self-regulation
- Grit
- Social Skills

# Methodology | Respondents

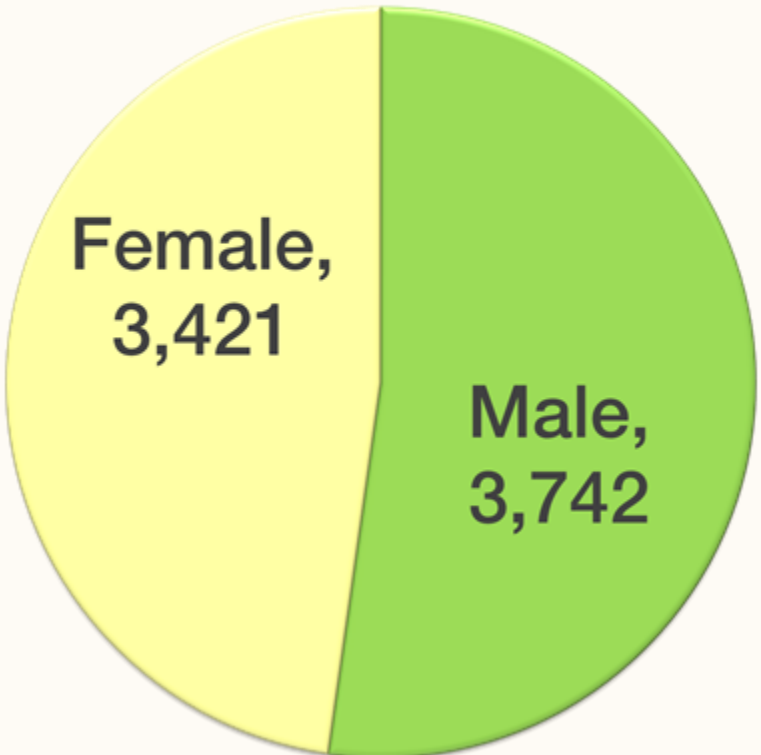
**PASS English and ASEC Test-takers  
During Pandemic (S.Y. 2021-2022)**



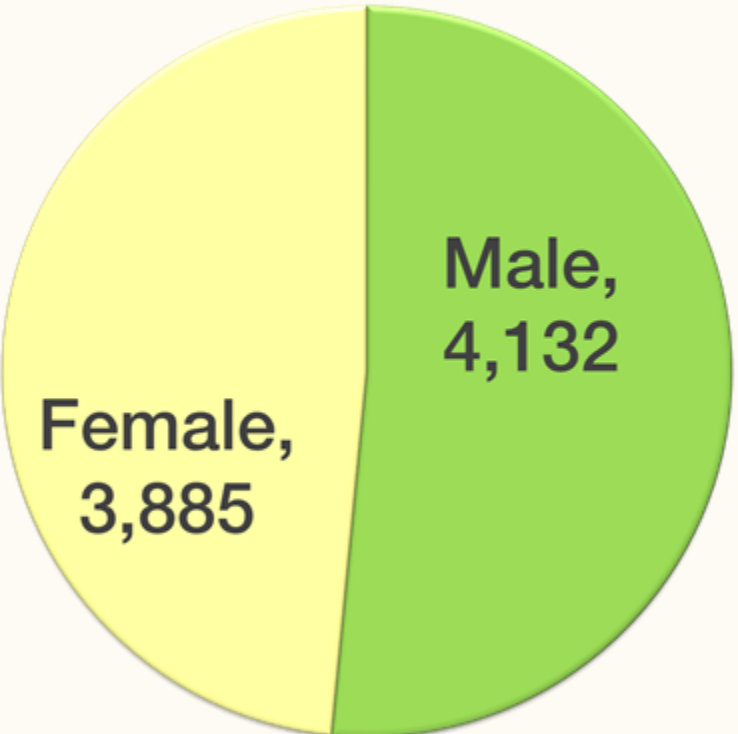
**PASS Math and ASEC Test-takers  
During Pandemic (S.Y. 2021-2022)**



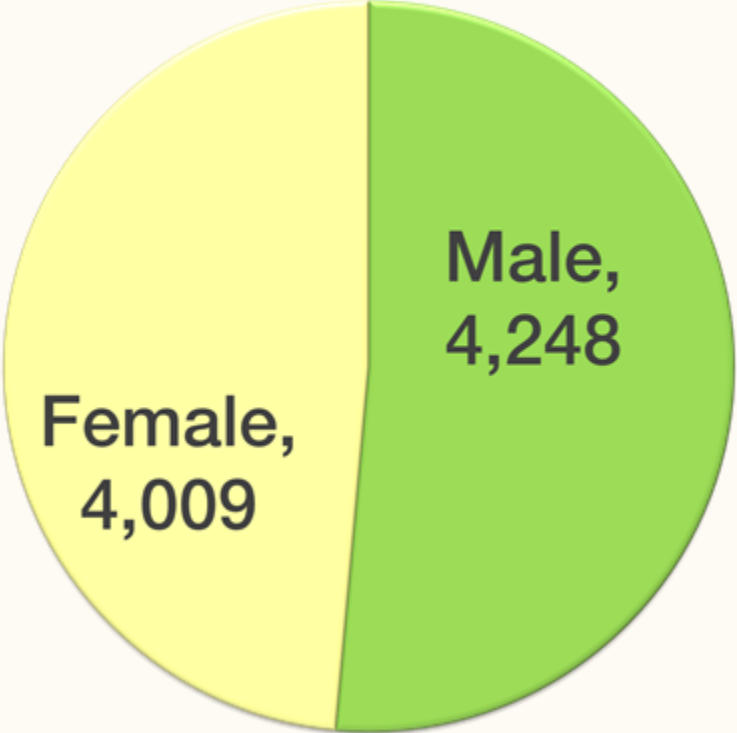
**PASS English and ASEC Test-takers  
Post Pandemic (S.Y. 2022-2023)**



**PASS Math and ASEC Test-takers  
Post Pandemic (S.Y. 2022-2023)**



**PASS Science and ASEC Test-takers  
Post Pandemic (S.Y. 2022-2023)**



# Descriptive Analysis

Descriptive Analysis of PASS–English, Math and Science Percentage Scores

Pre–pandemic (SY19–20), During Pandemic (SY21–22) and Post–pandemic (SY22–23)

PASS English	Pre–Pandemic	Post Pandemic	Pandemic
Grade Level	2019–2020	2022–2023	22–2023
Grade 1	61.70	87.95	64.47
Grade 2	58.33	72.25	62.20
Grade 3	47.86	57.49	52.10
Grade 4	45.44	51.83	44.69
Grade 5	47.13	53.15	39.03
Grade 6	41.27	45.66	40.71
Grade 7	33.05	38.81	39.52
Grade 8	35.19	39.74	33.21
Grade 9	33.88	39.89	30.32
Grade 10	36.04	43.52	33.09



**All Grade Levels Increase in English Scores From Pre-pandemic to Post Pandemic**



Predictors	English			Mathematics		
	Estimate	p	Stand. Estimate	Estimate	p	Stand. Estimate
<b>SEC</b>	33.66	< .001	0.153	18.5	0.169	0.0889
<b>Gender</b>						
<b>Male</b>	– -5.58	< .001	-0.295	1.16	0.626	0.0494
<b>Female</b>						
<b>Grade Level</b>						
<b>2 – 1</b>	-2.82	0.284	-0.149	-8.42	0.163	-0.3589
<b>3 – 1</b>	-19.39	< .001	-1.024	-23.09	< .001	-0.9838
<b>4 – 1</b>	-33.61	< .001	-1.774	-31.56	< .001	-1.3445
<b>5 – 1</b>	-40.79	< .001	-2.153	-42.9	< .001	-1.8277
<b>6 – 1</b>	-35.64	< .001	-1.882	-39.61	< .001	-1.6872
<b>7 – 1</b>	-28.45	< .001	-1.502	-36.83	< .001	-1.5688
<b>8 – 1</b>	-35.13	< .001	-1.855	-50.63	< .001	-2.1566
<b>9 – 1</b>	-42.5	< .001	-2.244	-50.57	< .001	-2.1541
<b>10 – 1</b>	-37.56	< .001	-1.983	-20.23	< .001	-0.8616

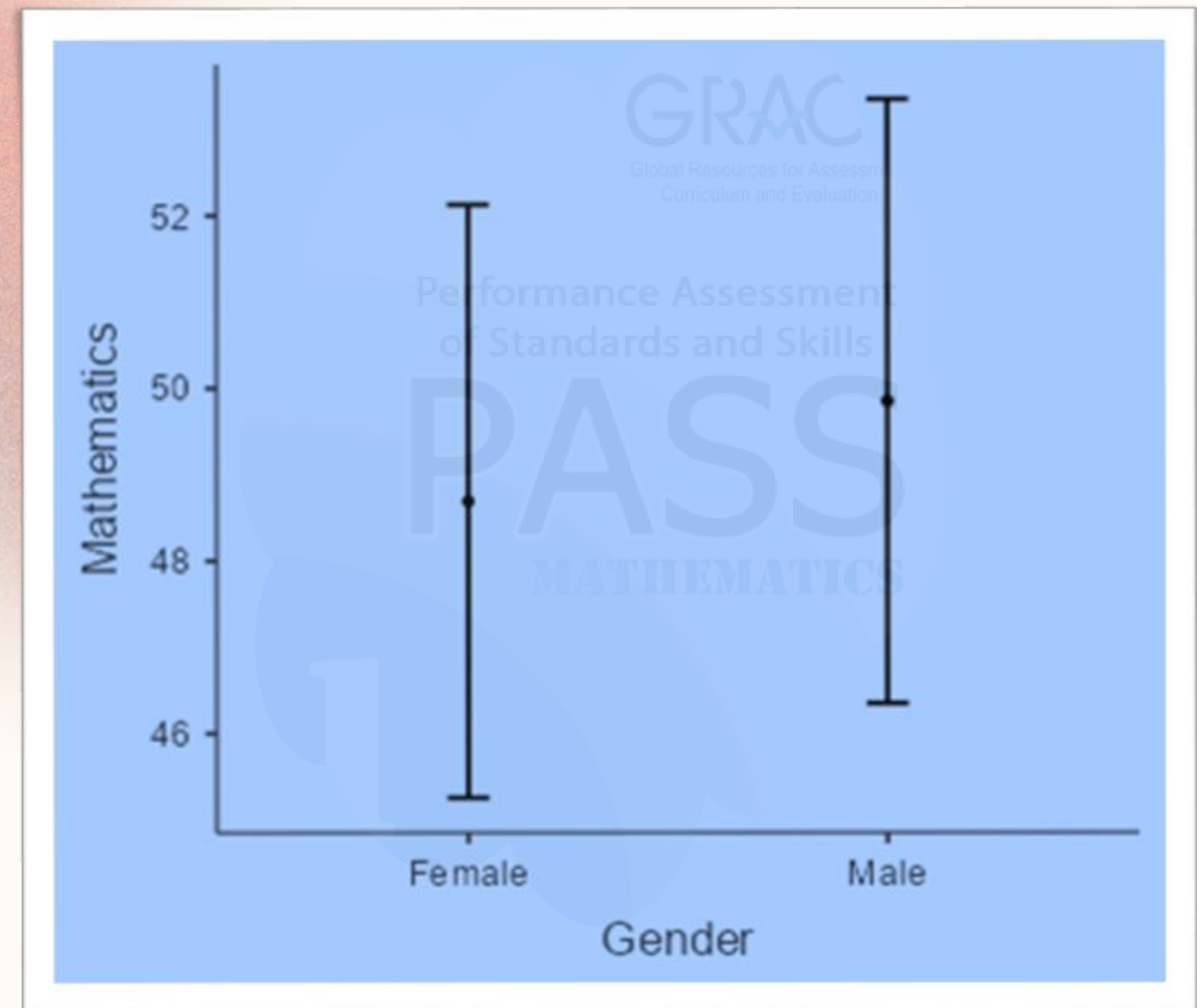
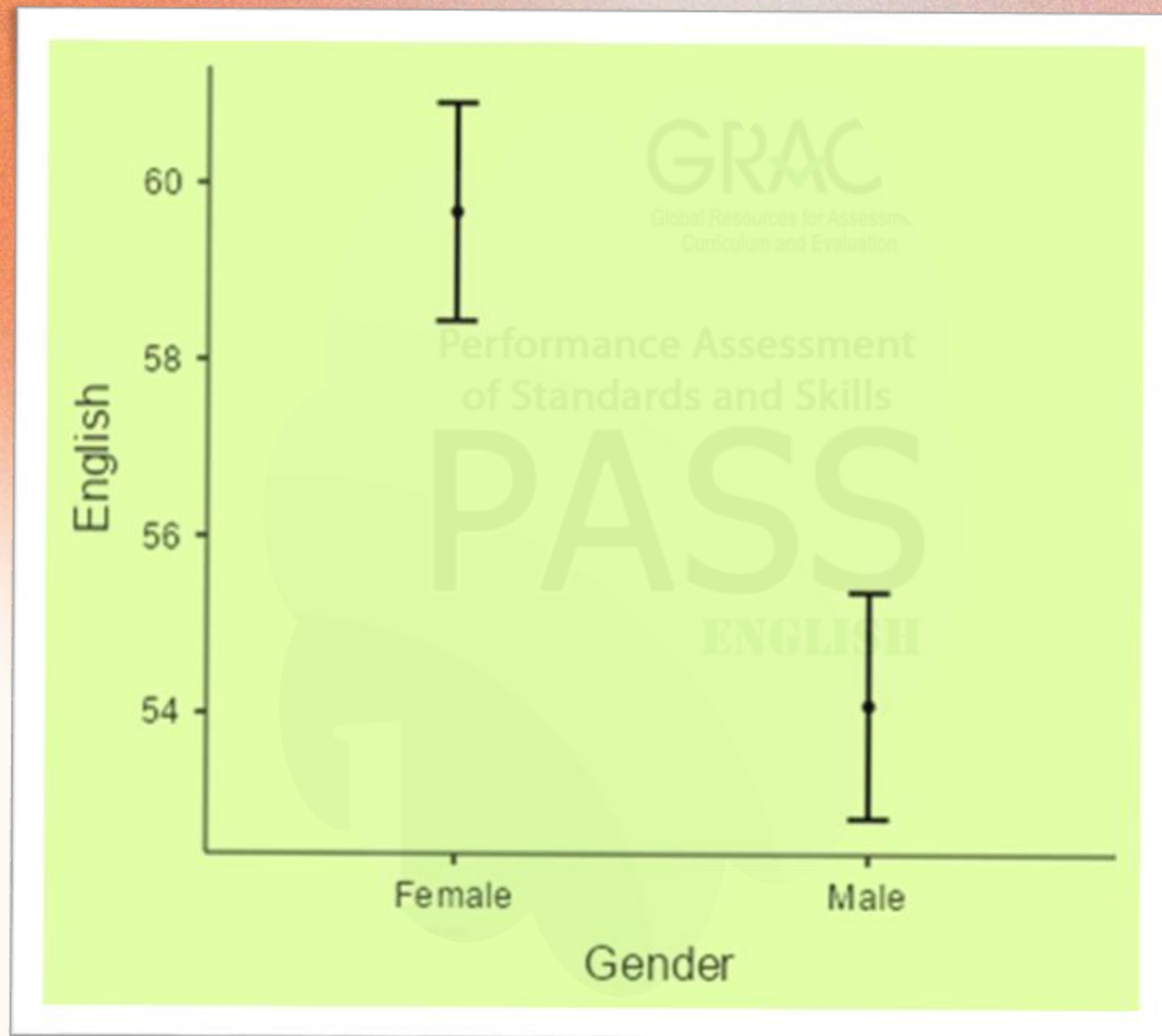
# Results

Multiple Regression of PASS Scores in English and Mathematics on Socio-emotional competencies, Gender, and Grade Level During Pandemic

During Pandemic		Grade Level	SEC
PASS English	Pearson Correlation	-0.569	0.423
	Sig. (2-tailed)	< .001	< .001
	pvalue	significance at the .01 level	significance at the .01 level
	N	980	980
Grade Level	Pearson Correlation		-0.482
	Sig. (2-tailed)		< .001
	pvalue		significance at the .01 level
	N		980
PASS Mathematics	Pearson Correlation	-0.338	0.332
	Sig. (2-tailed)	< .001	< .001
	pvalue	significance at the .01 level	significance at the .01 level
	N	230	230
Grade Level	Pearson Correlation		-0.588
	Sig. (2-tailed)		< .001
	pvalue		significance at the .01 level
	N		230

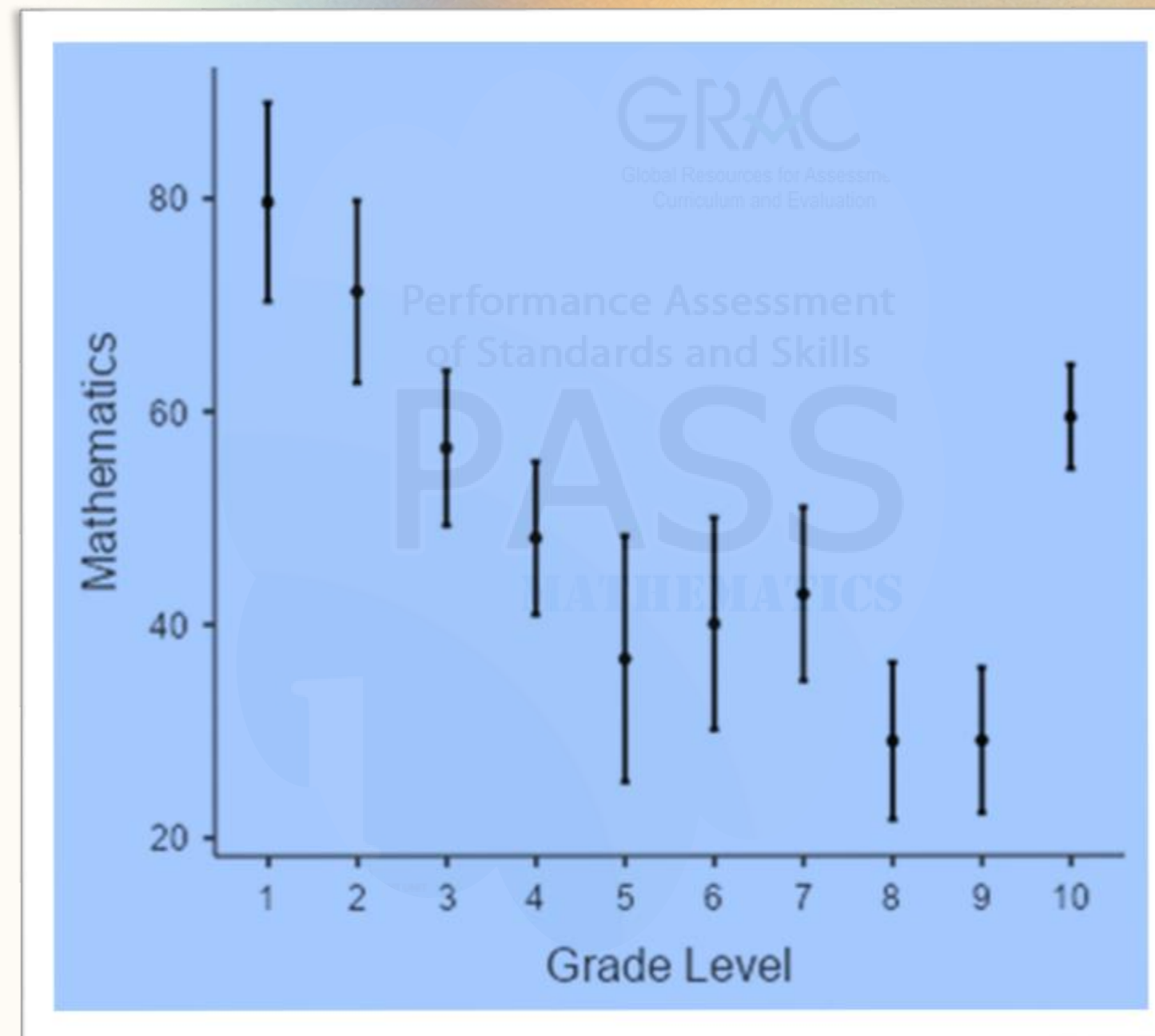
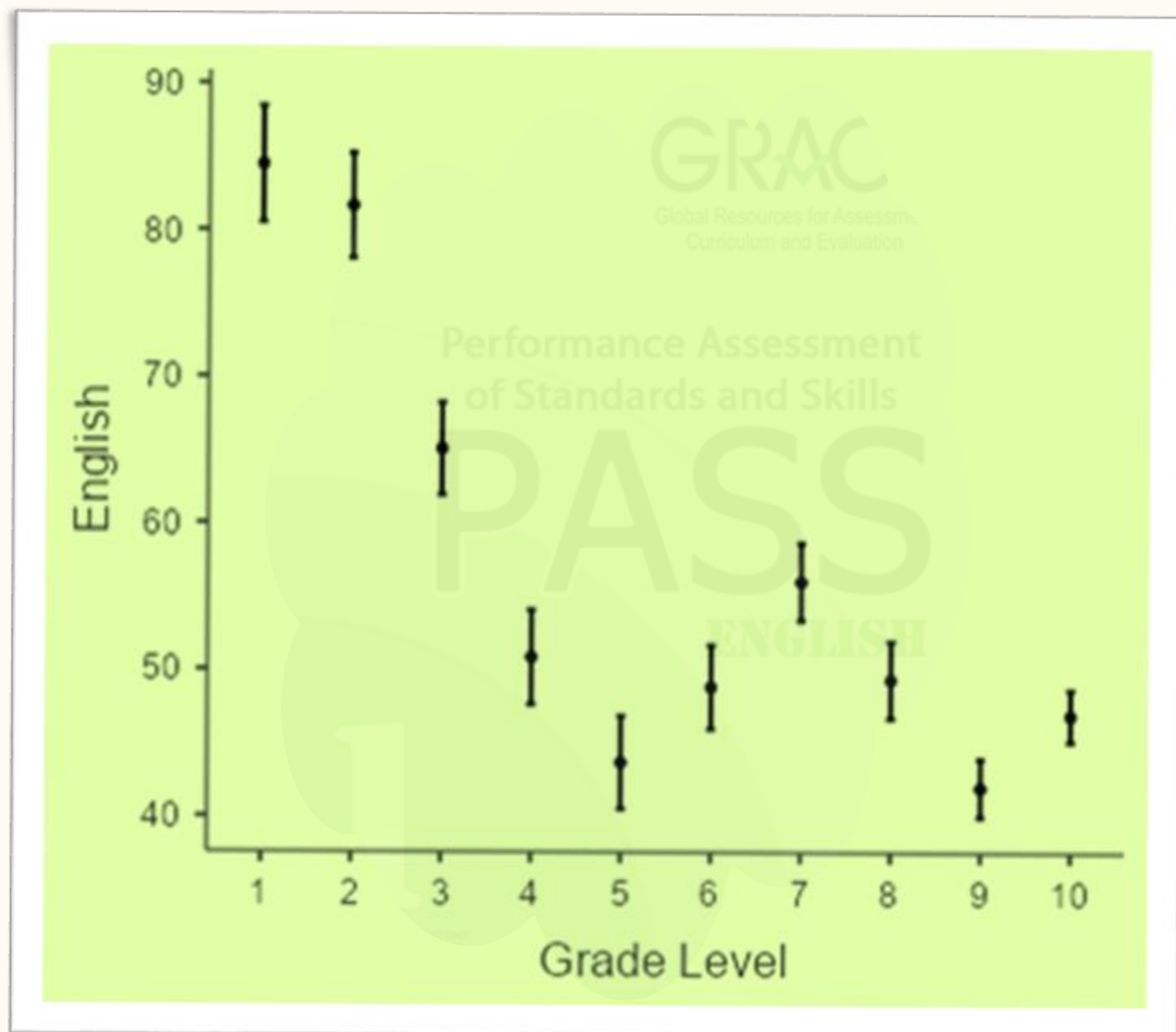
# Results

Correlation Matrix (PASS Scores, Grade Level, and ASEC Scores) During Pandemic



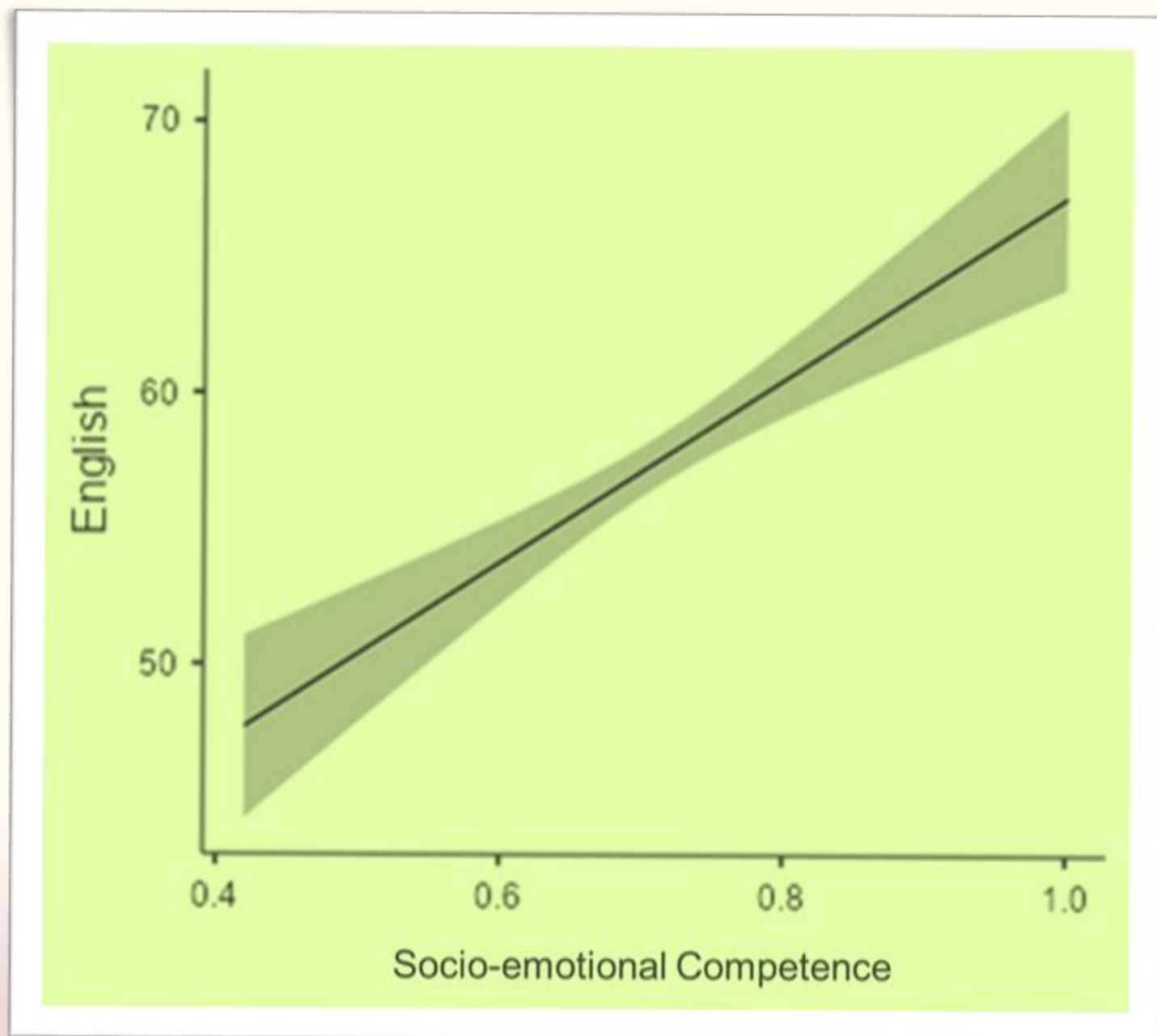
# Results

Estimated Marginal Mean of PASS Scores in English and Mathematics on Gender During Pandemic



# Results

Estimated Marginal Mean of PASS Scores in English and Mathematics on Grade Level During Pandemic



# Results

Estimated Marginal Mean of PASS Scores in English and Mathematics on SEC During Pandemic

Predictors	English			Mathematics			Science			
	Estimate	p	St. Estimate	Estimate	p	St. Estimate	Estimate	p	St. Estimate	
<b>SEC</b>	37.200	<.001	0.216	34.484	<.001	0.203	21.558	<.001	0.133	
<b>Gender</b>										
<b>Male</b>	-	-3.680	<.001	-0.201	-0.060	0.85	-0.003	-0.628	0.027	-0.037
<b>Female</b>										
<b>Grade Level</b>										
<b>2 – 1</b>		-3.640	<.001	-0.199	-3.118	<.001	-0.175	-15.660	<.001	-0.919
<b>3 – 1</b>		-9.040	<.001	-0.494	-13.923	<.001	-0.781	-30.718	<.001	-1.802
<b>4 – 1</b>		-25.620	<.001	-1.401	-19.410	<.001	-1.088	-34.810	<.001	-2.043
<b>5 – 1</b>		-30.600	<.001	-1.673	-24.916	<.001	-1.397	-33.408	<.001	-1.960
<b>6 – 1</b>		-21.820	<.001	-1.193	-22.911	<.001	-1.285	-40.675	<.001	-2.387
<b>7 – 1</b>		-14.970	<.001	-0.819	-22.196	<.001	-1.245	-46.355	<.001	-2.720
<b>8 – 1</b>		-18.020	<.001	-0.986	-28.591	<.001	-1.603	-45.541	<.001	-2.672
<b>9 – 1</b>		-27.820	<.001	-1.521	-31.715	<.001	-1.778	-45.554	<.001	-2.673
<b>10 – 1</b>		-20.540	<.001	-1.123	-28.958	<.001	-1.624	-41.957	<.001	-2.462

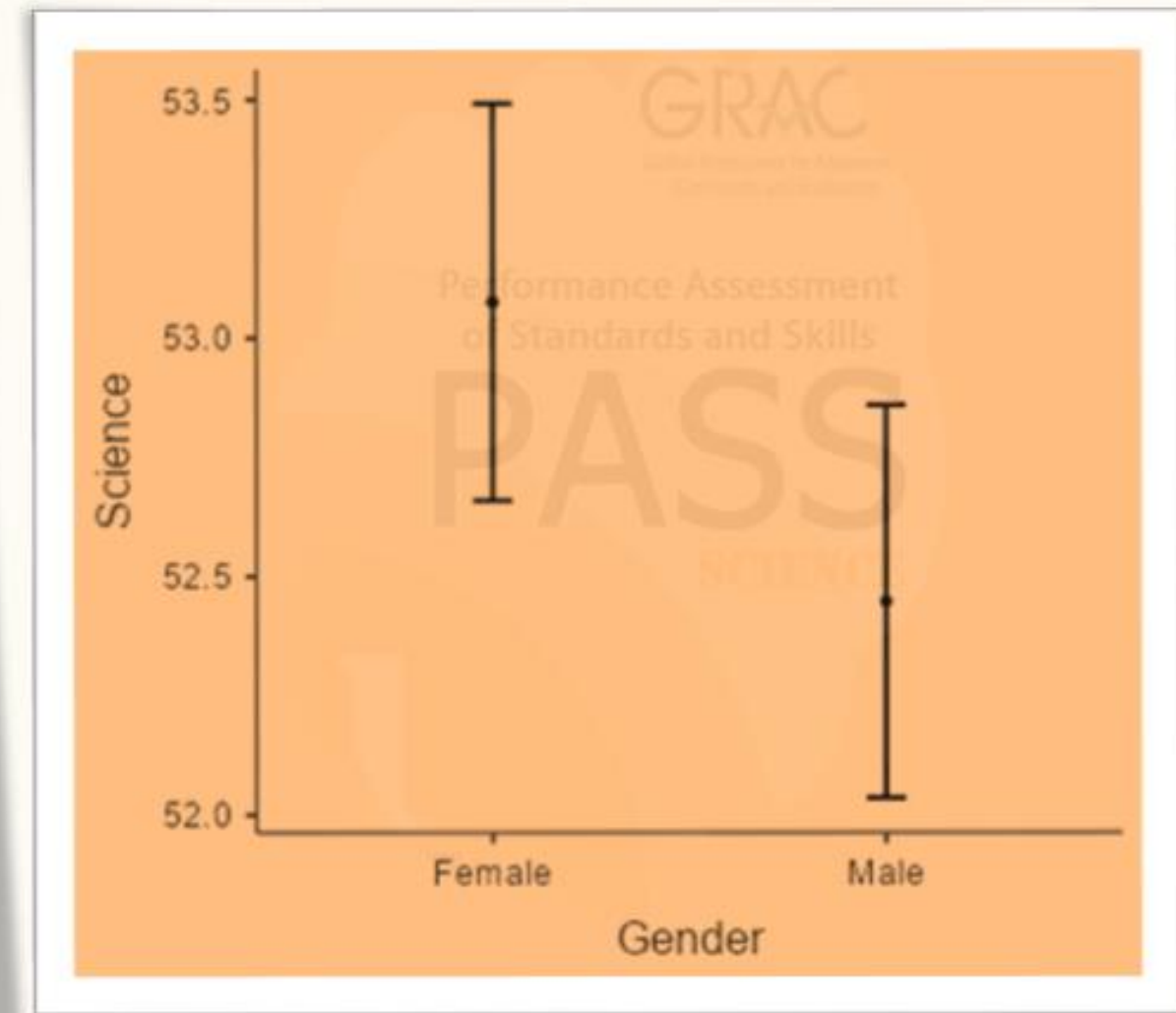
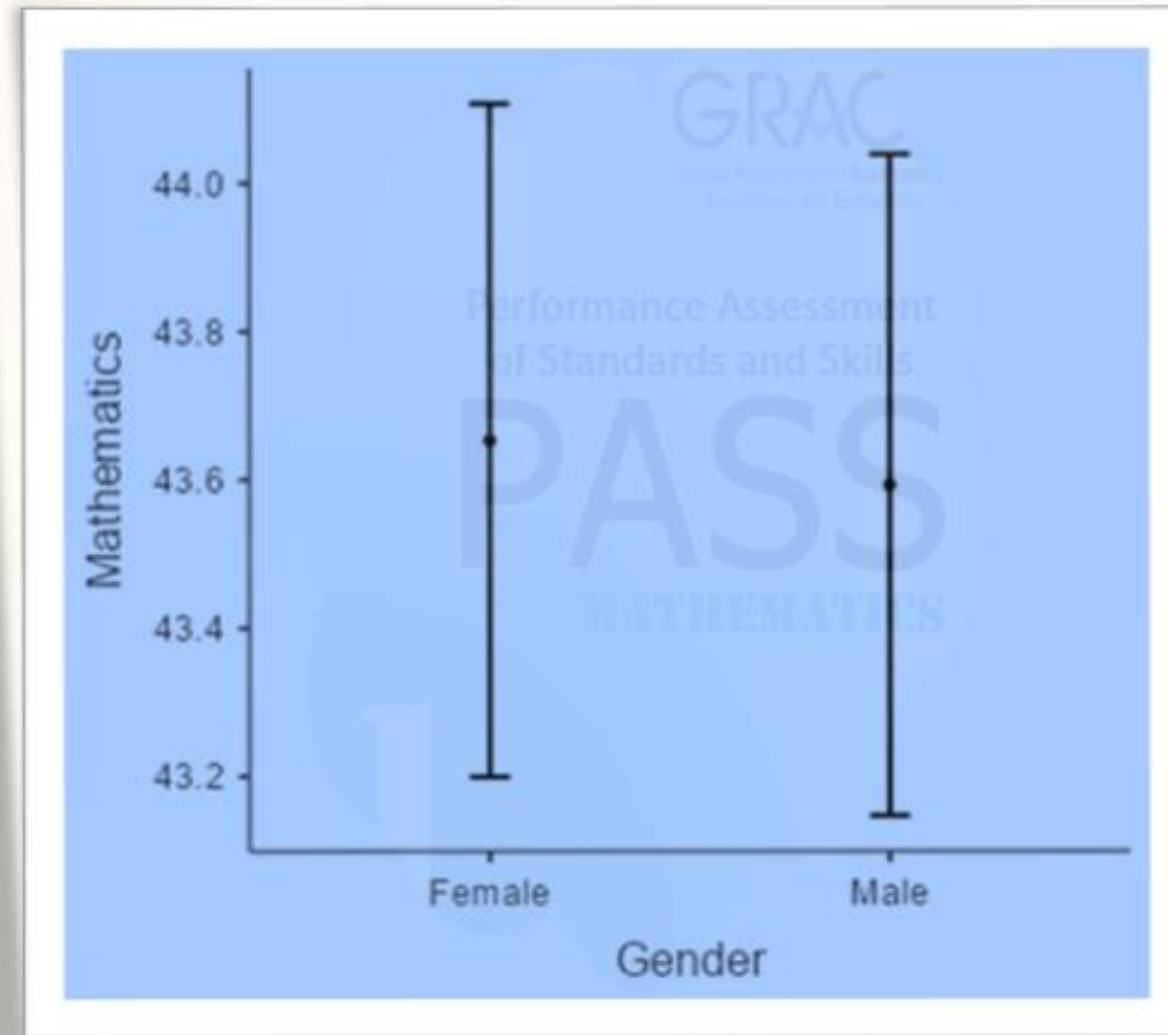
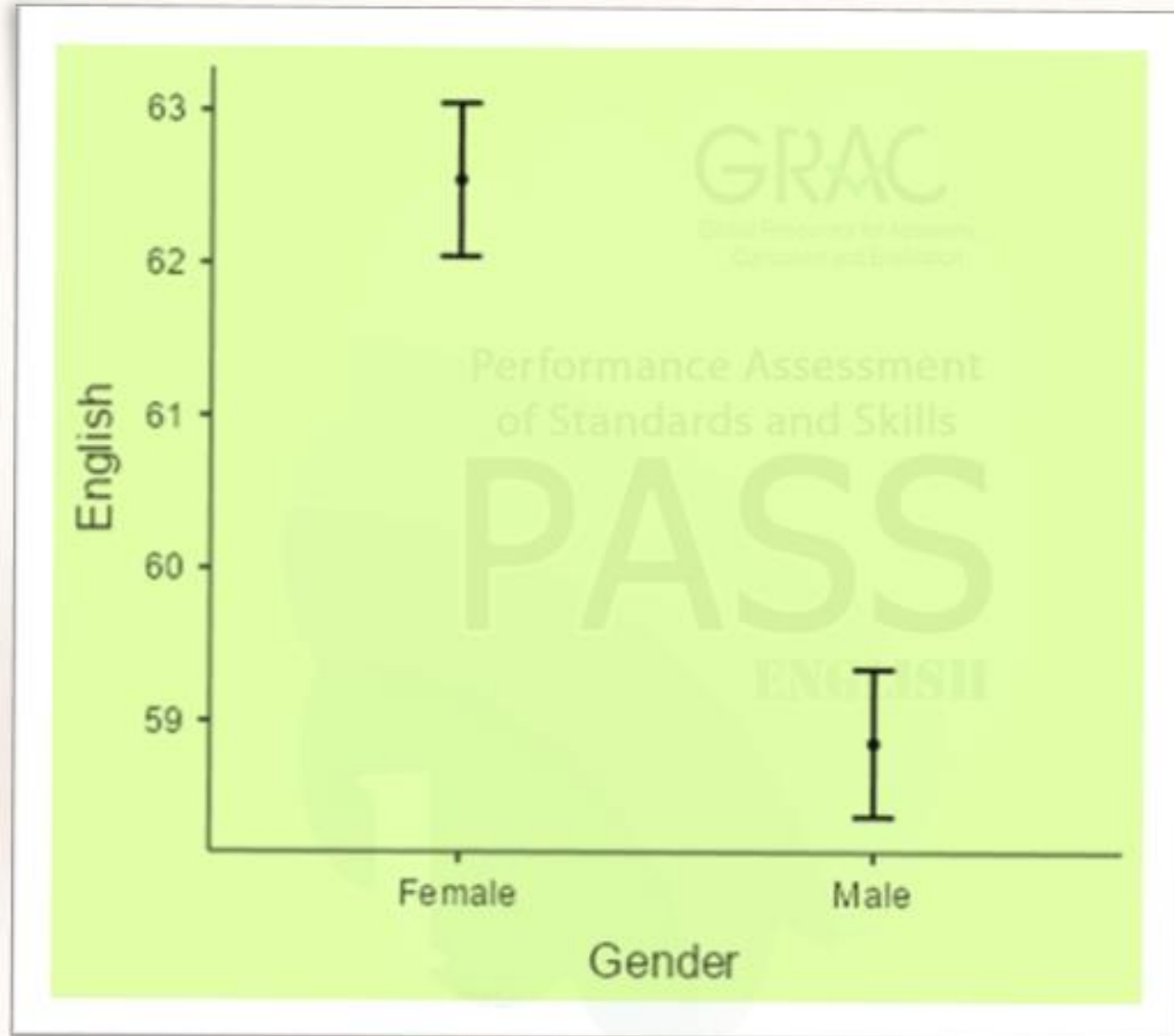
# Results

Multiple Regression of PASS Scores in English and Mathematics on Socio-emotional competencies, Gender, and Grade Level Post Pandemic

Post-Pandemic		Grade Level	ASEC Scores
<b>PASS English</b>	Pearson Correlation	-0.359	0.296
	Sig. (2-tailed)	< .001	< .001
	Pvalue	significance at the .01 level	significance at the .01 level
	N	7163	7163
<b>Grade Level</b>	Pearson Correlation		-0.335
	Sig. (2-tailed)		< .001
	pvalue		significance at the .01 level
	N		7163
<b>PASS Mathematics</b>	Pearson Correlation	-0.537	0.36
	Sig. (2-tailed)	< .001	< .001
	pvalue	significance at the .01 level	significance at the .01 level
	N	8017	8017
<b>Grade Level</b>	Pearson Correlation		-0.353
	Sig. (2-tailed)		< .001
	pvalue		significance at the .01 level
	N		8017
<b>PASS Science</b>	Pearson Correlation	-0.54	0.357
	Sig. (2-tailed)	< .001	< .001
	pvalue	significance at the .01 level	significance at the .01 level
	N	8257	8257
<b>Grade Level</b>	Pearson Correlation		-0.397
	Sig. (2-tailed)		< .001
	pvalue		significance at the .01 level
	N		8257

# Results

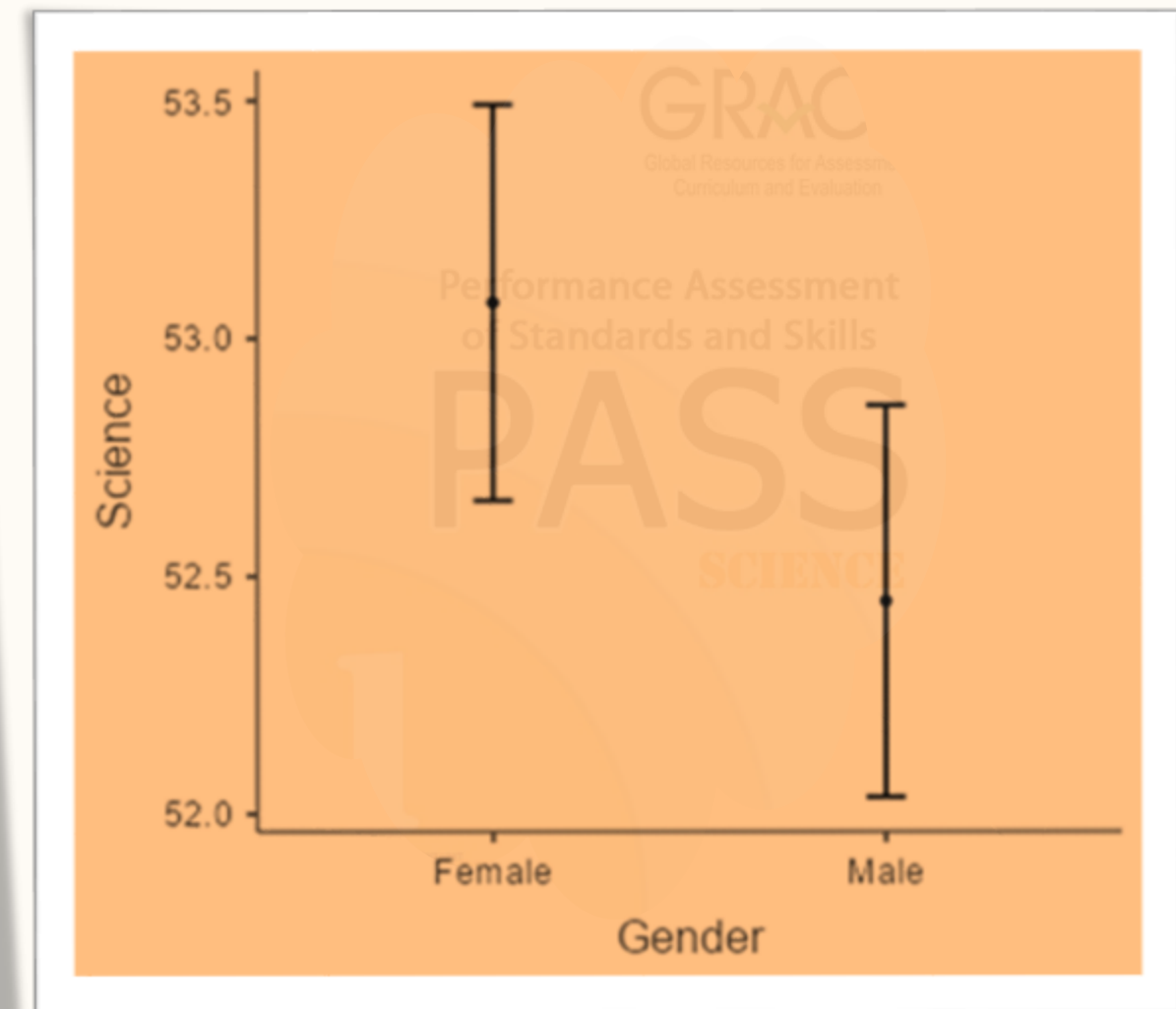
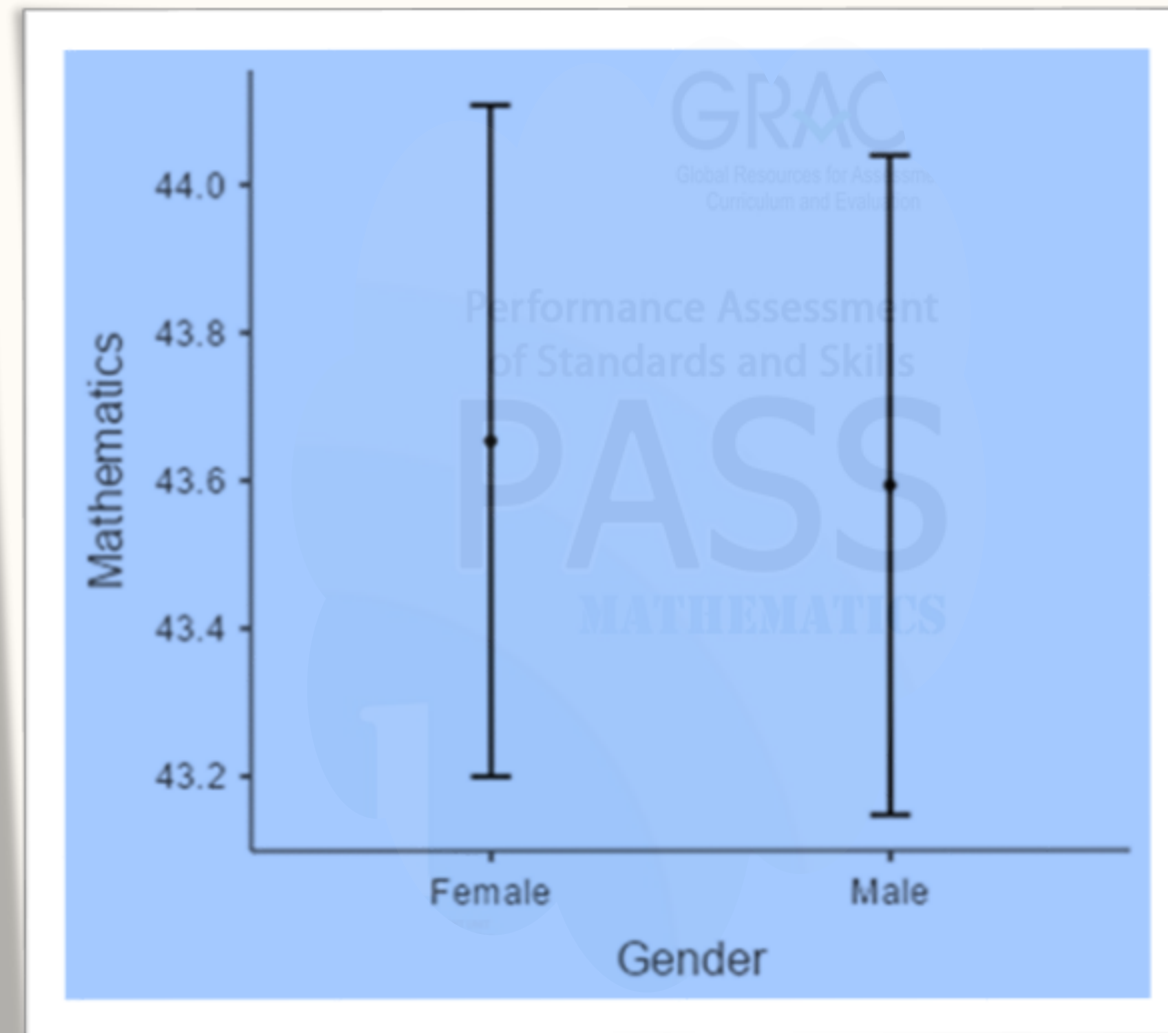
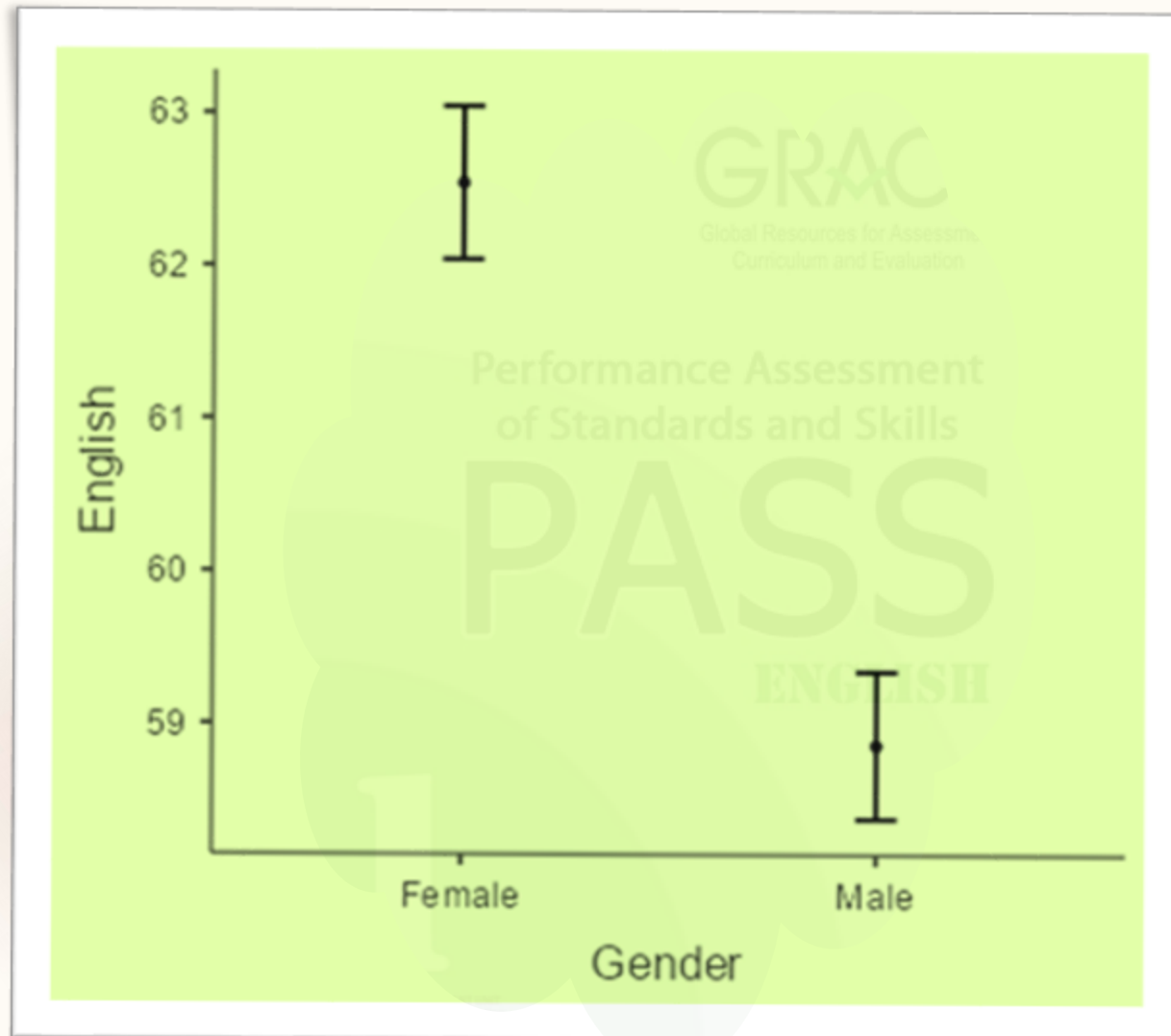
Correlation Matrix (PASS Scores, Grade Level, and ASEC Scores) Post Pandemic



# Results

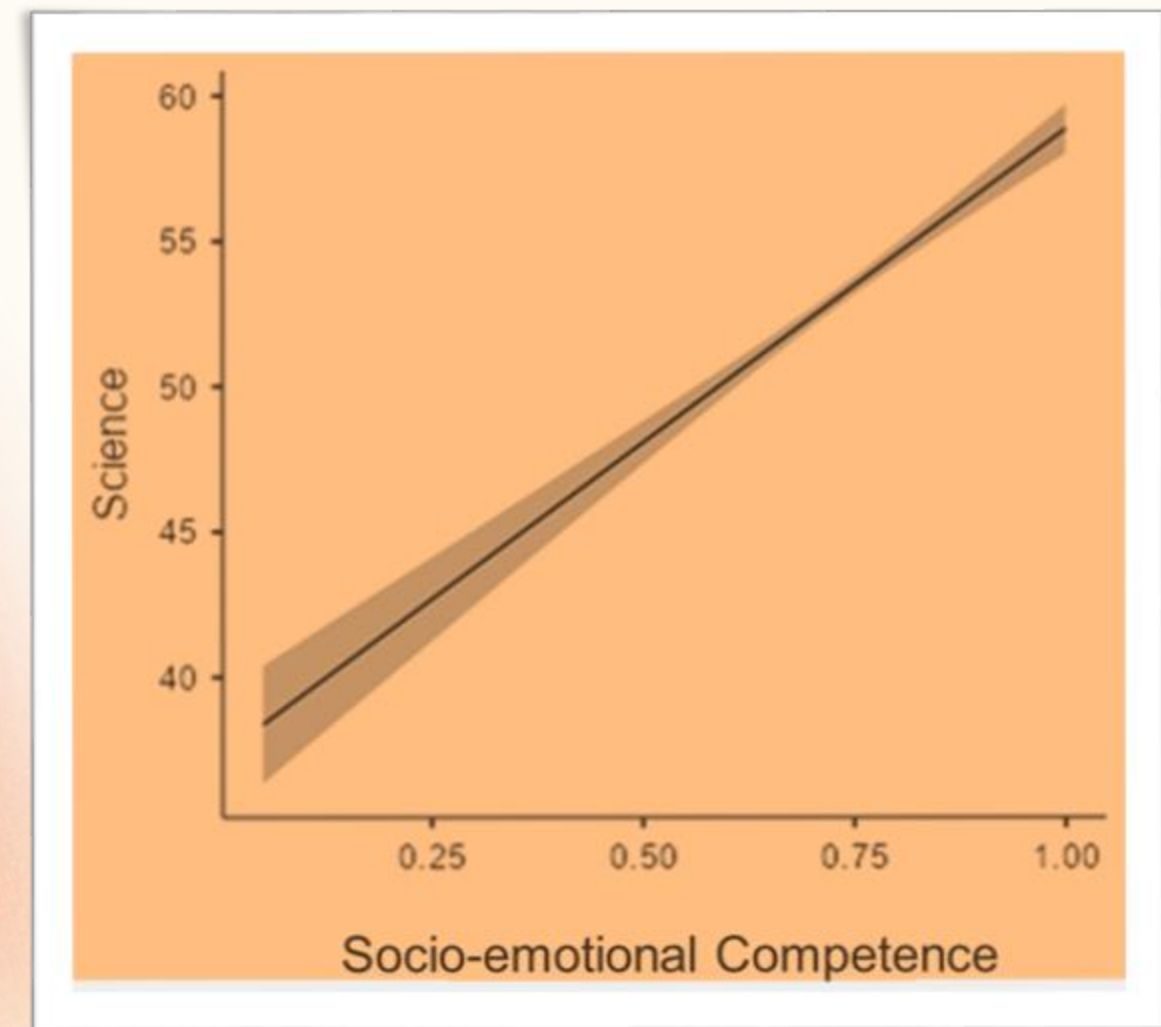
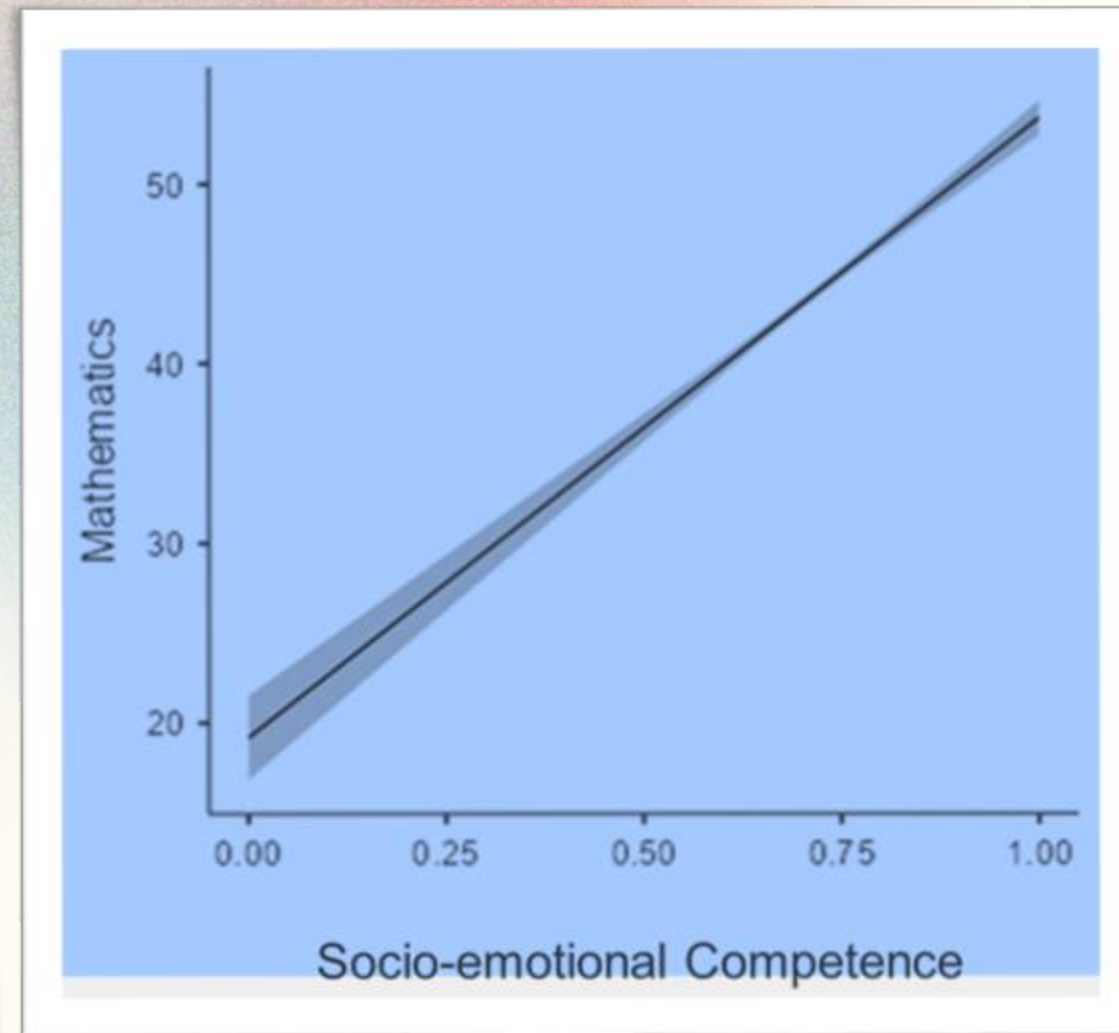
Estimated Marginal Mean of PASS Scores in English, Math and Science on Gender Post Pandemic





# Results

Estimated Marginal Mean of PASS Scores in English, Math and Science on Gender Post Pandemic



# Results

Estimated Marginal Mean of PASS Scores in English, Math and Science on SEC Post Pandemic

	Grade Level * ASEC Scores	Estimate	SE	p
<b>During Pandemic</b>	English	-6.99	1.98	< .001
<b>Post-Pandemic</b>	English	-12.66	0.69	< .001
	Mathematics	-9.78	0.57	< .001
	Science	-7.58	0.58	< .001

# Results

**Moderation Estimate of the Students' Grade Level and ASEC Scores on PASS Scores During and Post-Pandemic**

## Correlation Effects of the Grade Level on the English Achievement Scores on Various Levels of the SEC During Pandemic

SEC	Estimate	SE	Z	p
Low (-1SD)	-2.42	0.293	-8.23	< .001
Average	-3.02	0.184	-16.37	< .001
High (+1SD)	-3.62	0.201	-18.04	< .001

# Results

### Correlation Effects of the Grade Level on the English Achievement Scores on Various Levels of the SEC

SEC	Estimate	SE	Z	p
Low (-1SD)	-0.655	0.1049	-6.25	< .001
Average	-1.996	0.0716	-27.89	< .001
High (+1SD)	-3.337	0.1009	-33.05	< .001

### Correlation Effects of the Grade Level on the Mathematics Achievement Scores on Various Levels of the SEC

SEC	Estimate	SE	Z	p
Low (-1SD)	1.9	0.799	2.38	0.017
Average	-1.31	0.491	-2.66	0.008
High (+1SD)	-4.52	0.604	-7.48	< .001

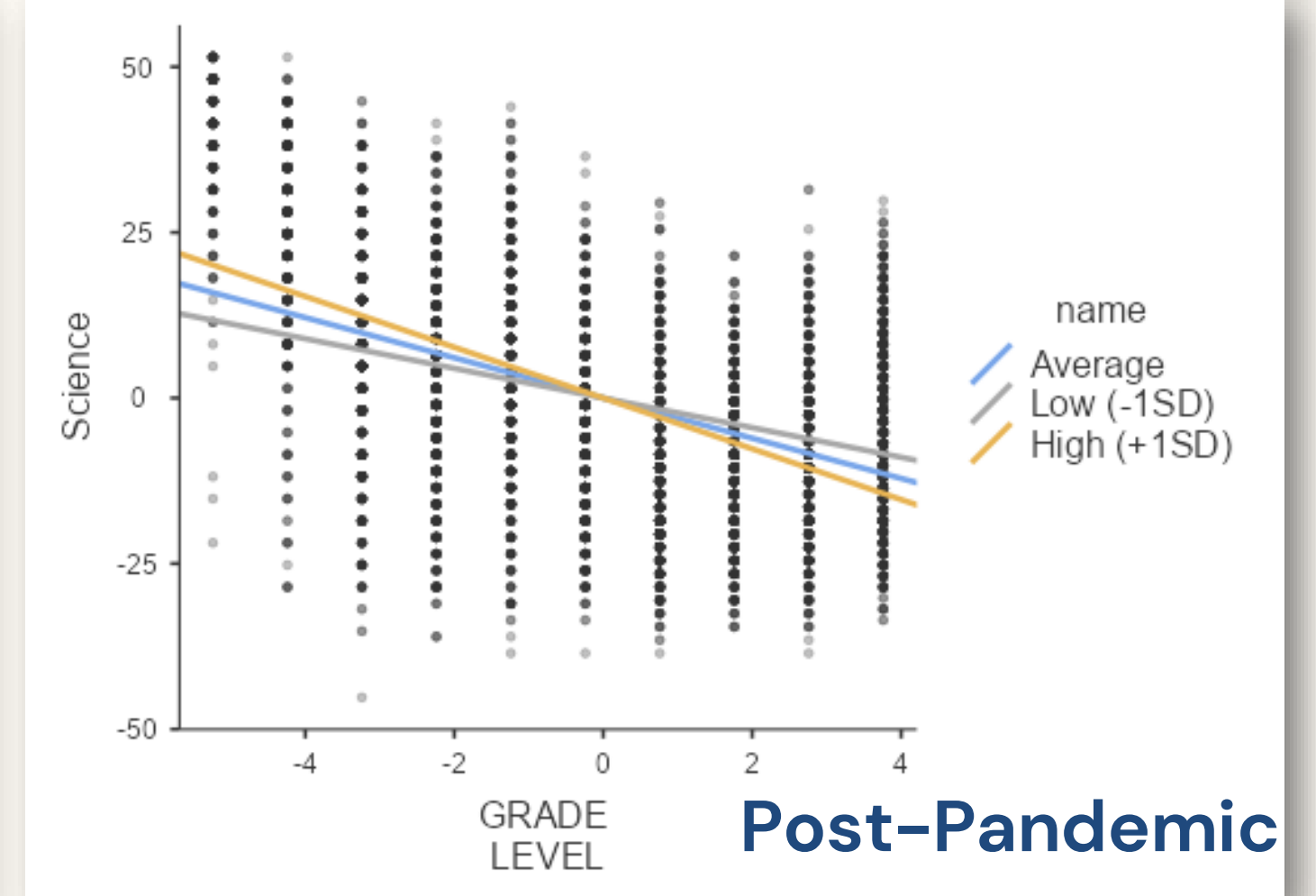
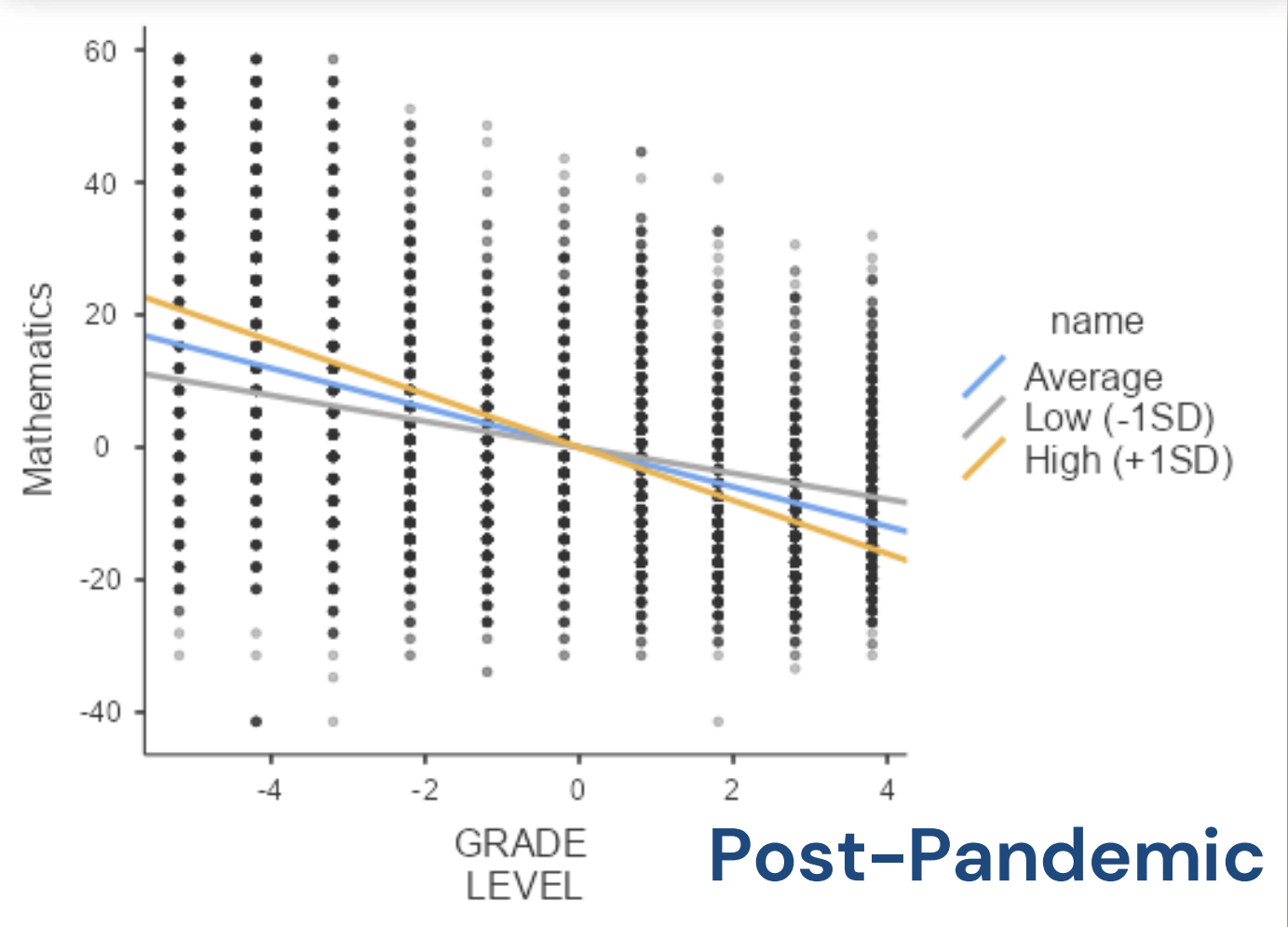
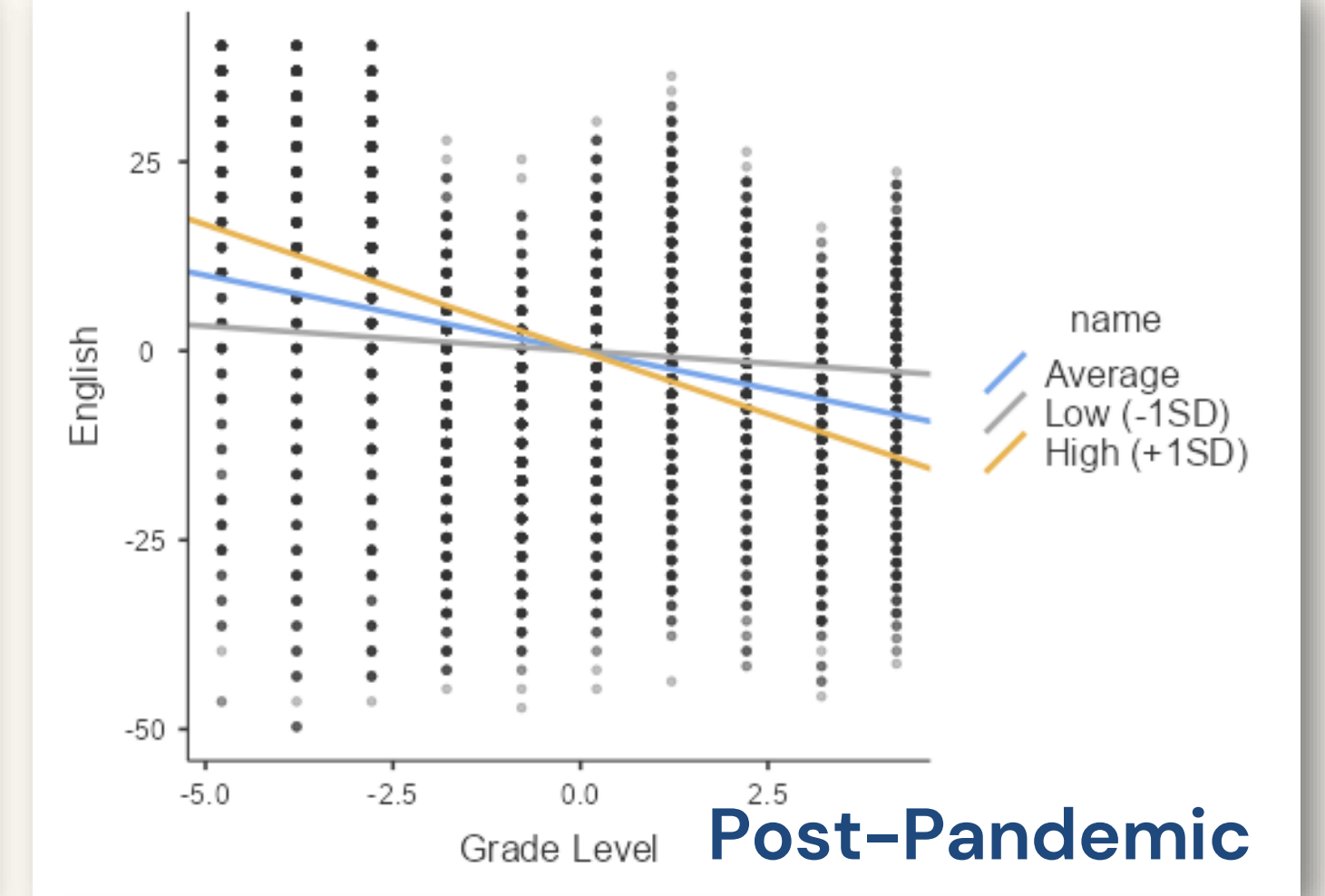
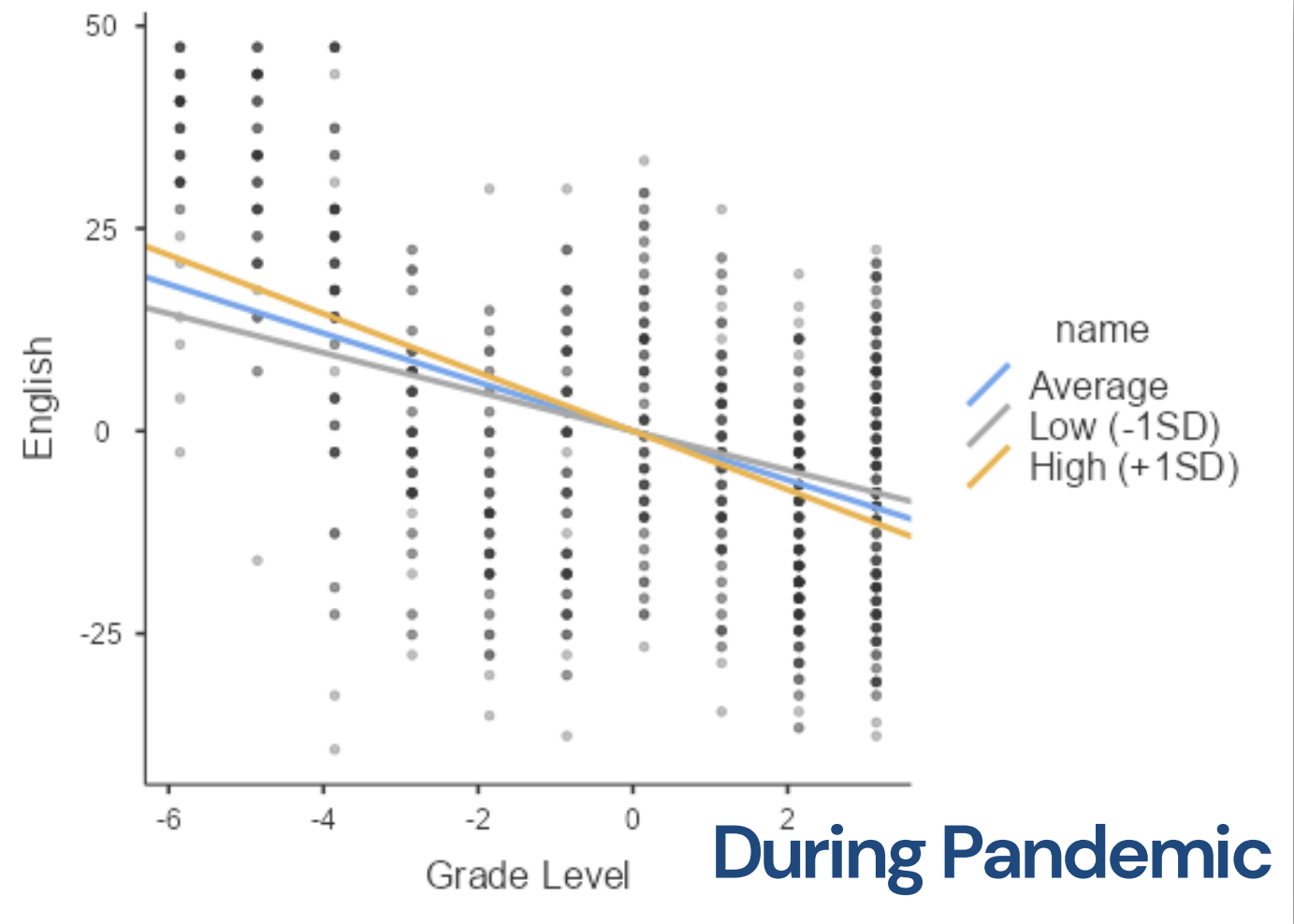
### Correlation Effects of the Grade Level on the Science Achievement Scores on Various Levels of the SEC

SEC	Estimate	SE	Z	p
Low (-1SD)	-2.24	0.0947	-23.6	< .001
Average	-3.04	0.061	-49.8	< .001
High (+1SD)	-3.83	0.078	-49.2	< .001

# Results

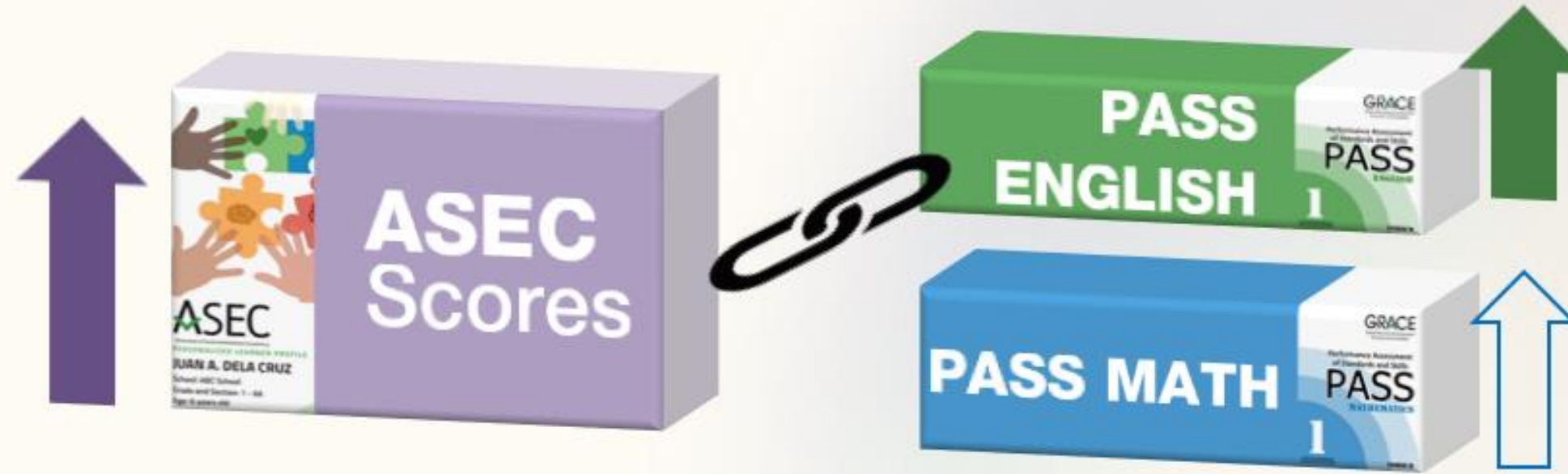
**Correlation Effects of the Grade Level on the Achievement Scores on Various Levels of the SEC Post Pandemic**

# Moderation Estimate of the Students' Grade Level and ASEC Scores on PASS Scores During and Post-Pandemic

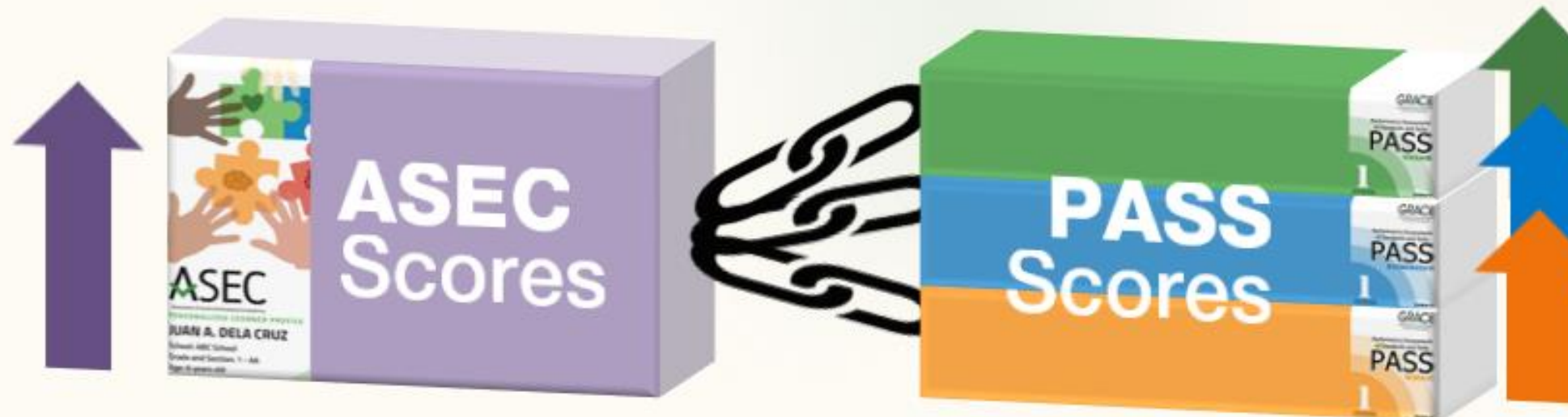


# Conclusion

**During Pandemic**  
(SY 2021-2022)



**Post Pandemic**  
(SY 2022-2023)



# Recommendation

## 1. Exploring Additional Predictors:

- Socioeconomic Status
- Length of School Closure

## 2. SEL Development Programs for all grade levels

## 3. Gender Discrepancies in among core subjects: English, Math, and Science

## 4. Investigating Older Students' Decline of Academic Performance

## 5. Building back to better education after learning disruption





PHILIPPINE EDUCATIONAL MEASUREMENT AND  
EVALUATION ASSOCIATION, INC.



**Thank you for your  
active listening!**

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