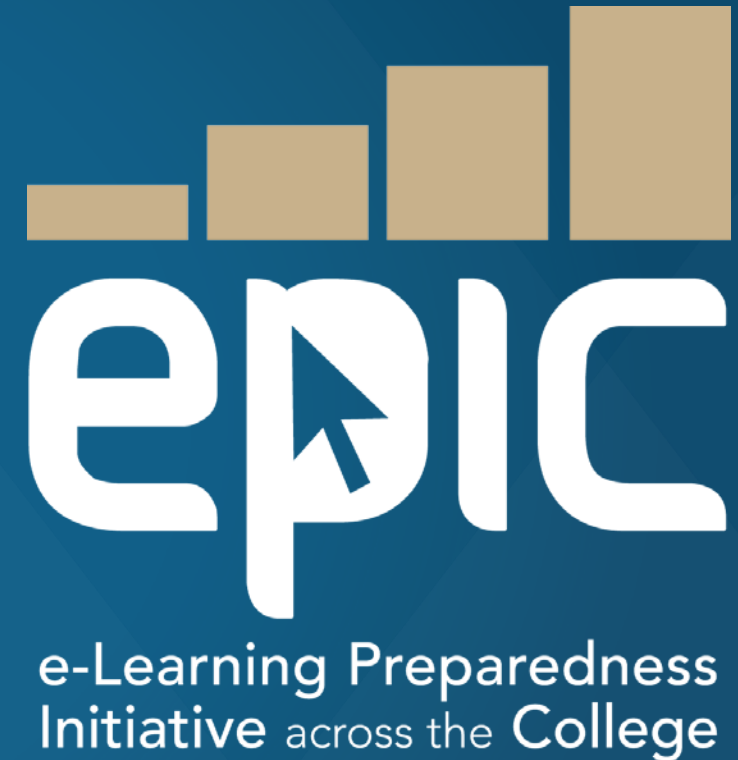


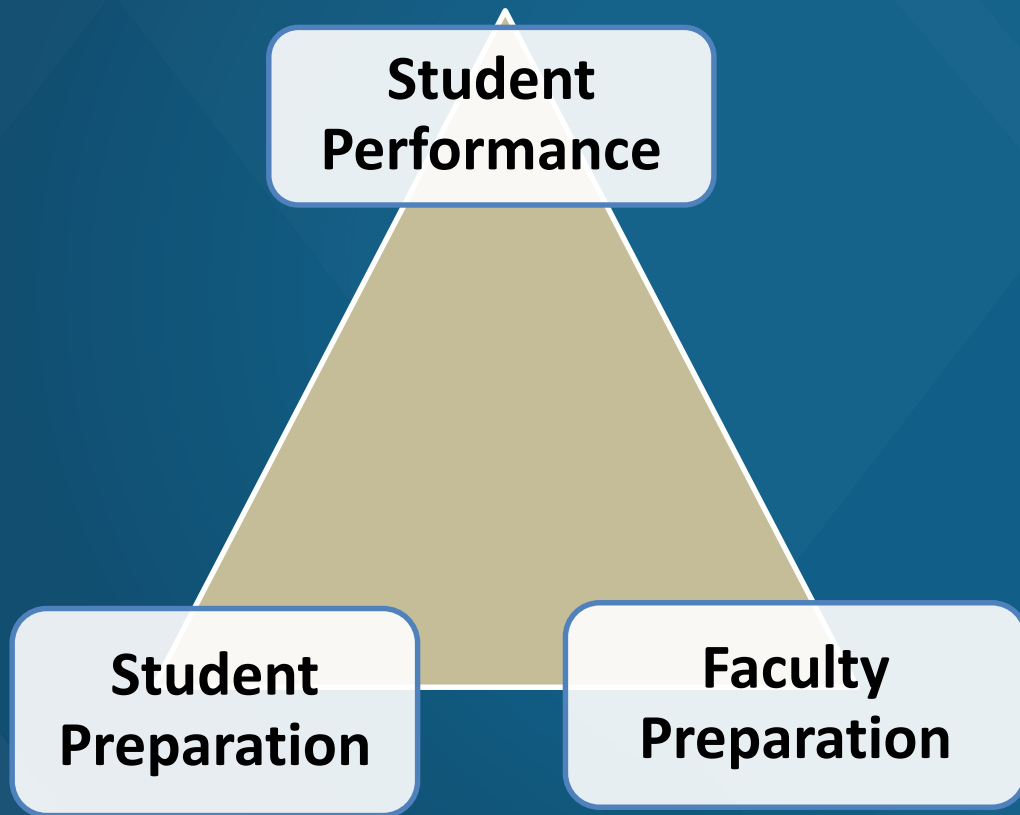
Evaluation of the effect of a required online learning orientation on the success of community college students in online courses

Society for Research on Educational Effectiveness
Annual Conference
March 13, 2020

Carrie Bartek, Executive Director, College Initiatives and Assessment
Suganya Sumithran, Data Scientist
Rachel Madsen, Director of Assessment



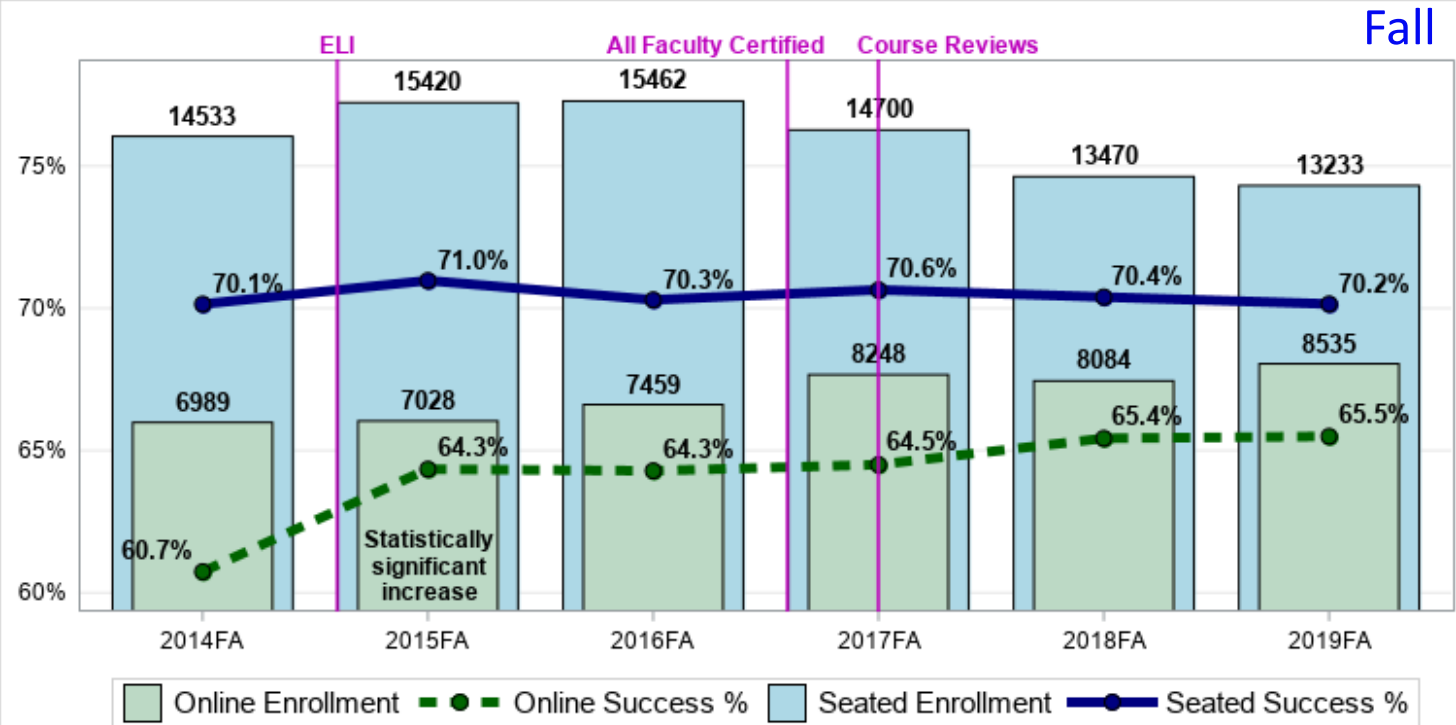
Summative Evaluation



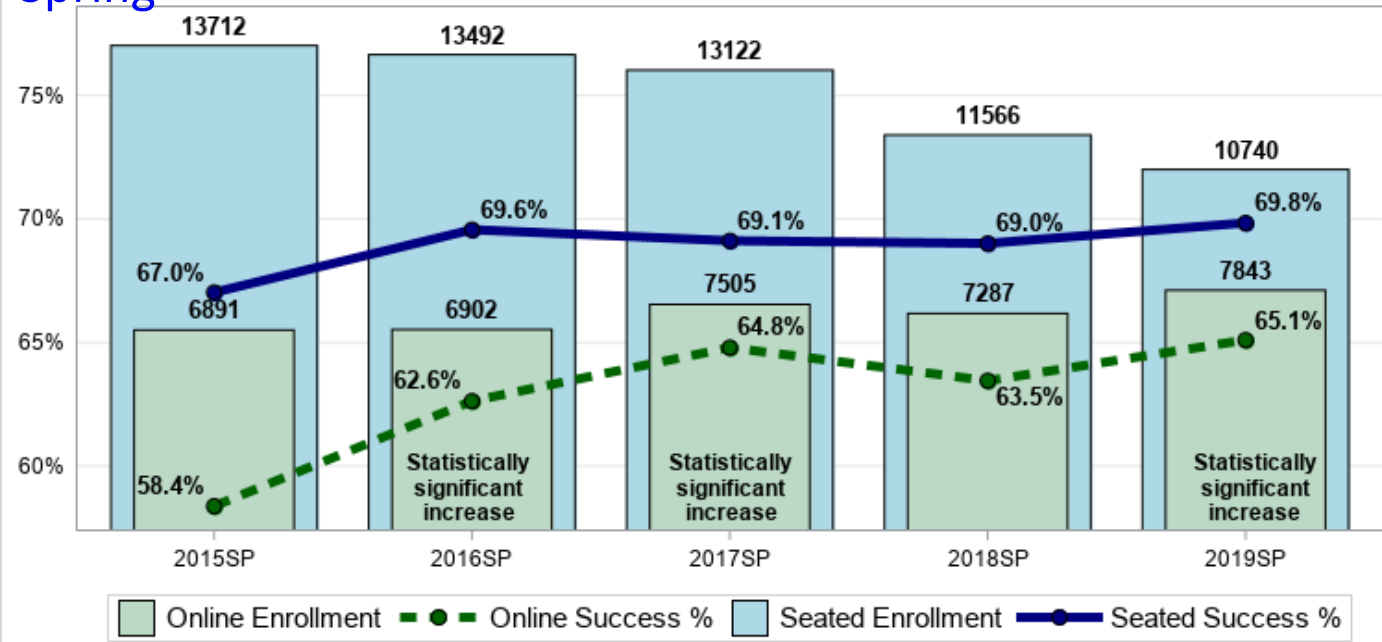
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e-Learning Preparedness
Initiative across the College

Student Performance (Priority Courses)



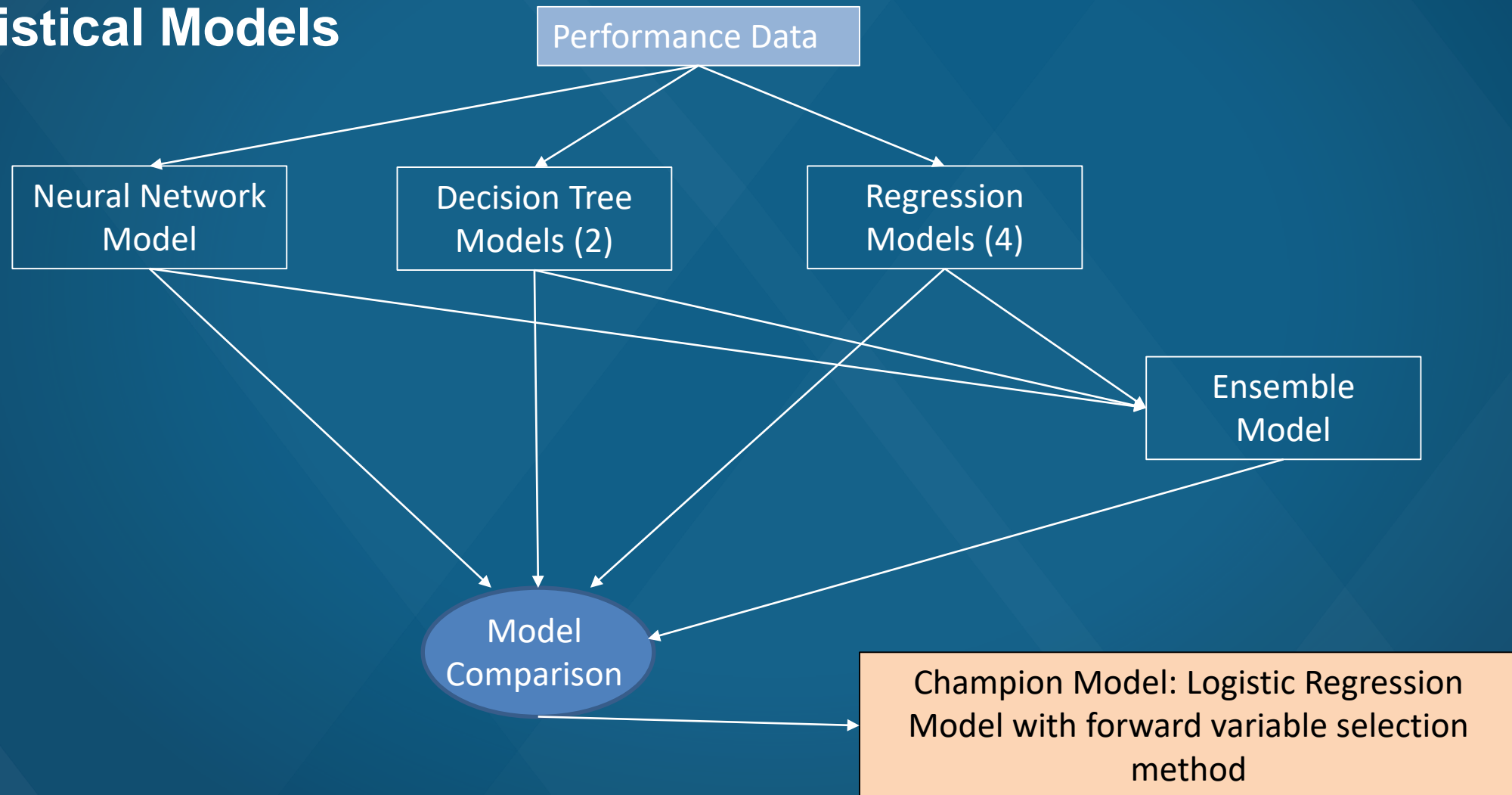
Spring



- Significant increase in online student success rates
- Gap between seated and online success rates closed

Part 1: What were the significant factors that affected online student success rates?

Statistical Models



Factors Affecting Success Rates

Effect	DF	Wald Chi-Square	Pr > ChiSq
Age_Group	3	422.4442	<.0001
ELI_Completed	1	13.1503	0.0003
Gender	1	10.4393	0.0012
IMP_HS_GPA	1	911.1441	<.0001
Lead_ins_certified	1	0.0800	0.7773
New_Course_Name	525	4531.7649	<.0001
Pell_Eligible	1	12.2404	0.0005
Race_Ethnicity	6	2495.0633	<.0001
Semester	1	1.5698	0.2102

Variables in the predictive model

Factors Statistically Significant **

* Lead_ins_certified: Primary instructor is certified in Online teaching

**Statistical significance: Likelihood that a relationship between two or more variables is caused by something other than chance.

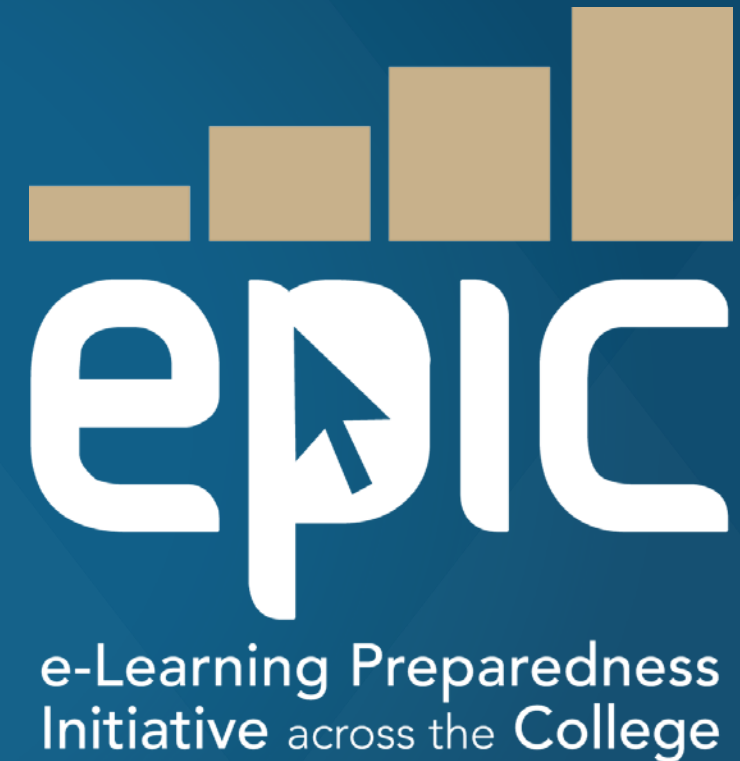
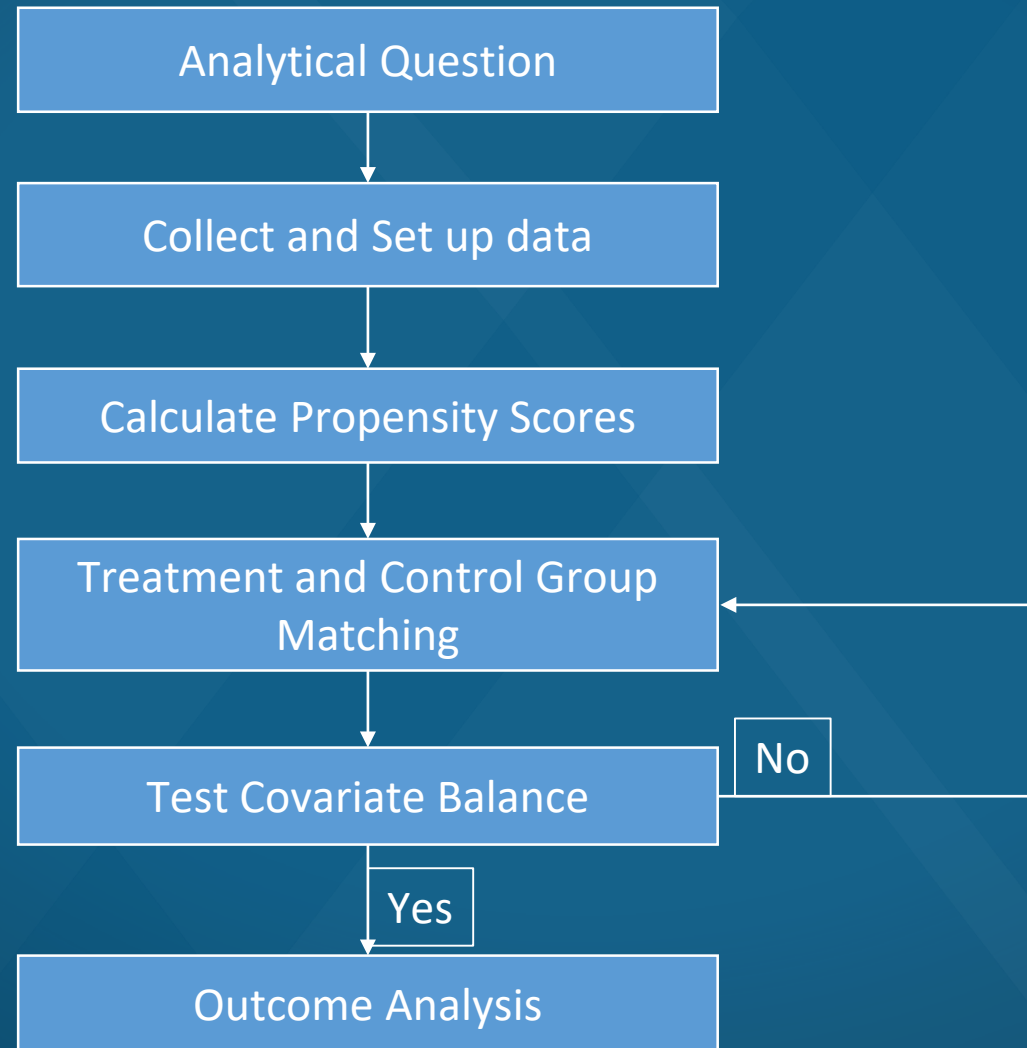
Part 2: Evaluating Causal Effect

Research Question:

Is there a significant difference in the performance of **students with similar characteristics** who did (treatment) and did not (control) take **eLearning**
Intro?



Steps – Propensity Score Matching



eLearning Intro Causal Effect



1. Grades in all first online courses at WTCC

- **Control** (pre-ELI): 2014-2015
- **Treatment** (completed ELI): 2015-2016 (ex. summer).

2. Propensity Score Covariates

a. **Semester**

- Match Fall-Fall, Spring-Spring
- Length (Full 16wks, 1st 8wks or 2nd 8wks)

b. **Student Demographics**

- Gender, Age Group, Race/ethnicity, HS GPA, Pell Award

c. **Course Characteristics**

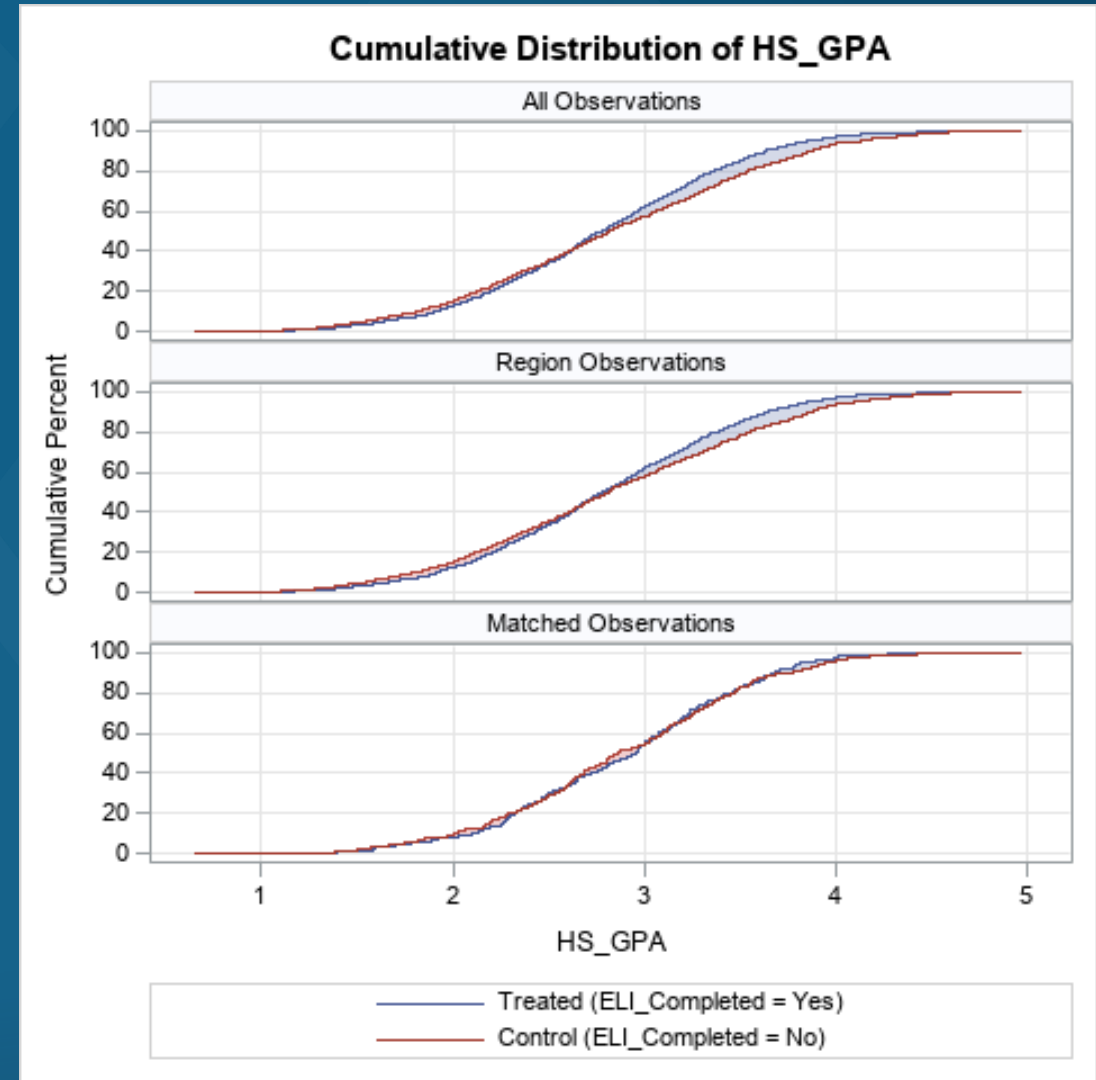
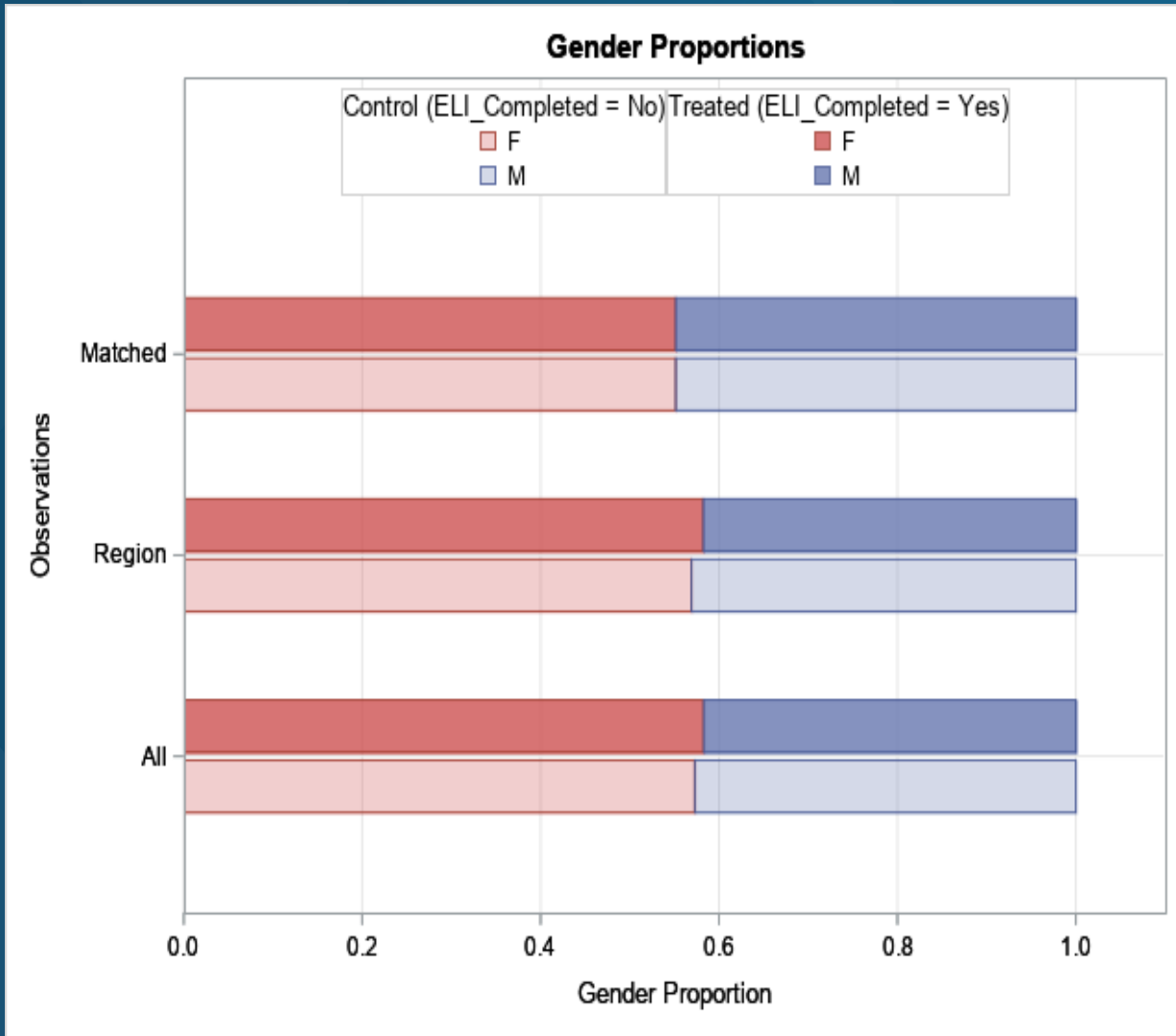
- Instructor, Faculty Status (FT/PT)

Variable Distribution of the Population

ELI Subset - 2014 & 2015 First Online Enrollments (N=5669)

Variable	
Gender	Female-58%, Male-42%
Race/Ethnicity	WH-55%, BL-25%, HIS-9%
Pell Award	Received Pell-56%
Full Time Faculty	FT-68%
Semester Duration	98%-16weeks
Age Group	'18 to 21'-57%, '22-34'-36%, '35-49'-4%
ELI Completed	Completed ELI-53%

Covariate Balance Examples



Outcome Analysis ELI – Chi-squared test

		Success		Total	
		No Success	Success		
ELI_Completed	No	Frequency	174	205	379
		Row Pct	45.91	54.09	
	Yes	Frequency	141	238	379
		Row Pct	37.20	62.80	
Total	Frequency	315	443	758	

Statistic	DF	Value	Prob
Chi-Square	1	5.9154	0.0150
Likelihood Ratio Chi-Square	1	5.9240	0.0149
Continuity Adj. Chi-Square	1	5.5623	0.0184
Mantel-Haenszel Chi-Square	1	5.9076	0.0151

*P \leq .05

ELI significantly improved student performance

Research questions answered with matched sets

- Success Rates
 - Did ELI significantly improve success rates of priority online courses? **Yes**
 - Did ELI significantly improve success rates of all online courses? **Yes**
- Withdrawal Rates
 - Did ELI significantly improve withdrawal rates of priority online courses? **Yes**
 - Did ELI significantly improve withdrawal rates of all online courses? **Yes**