



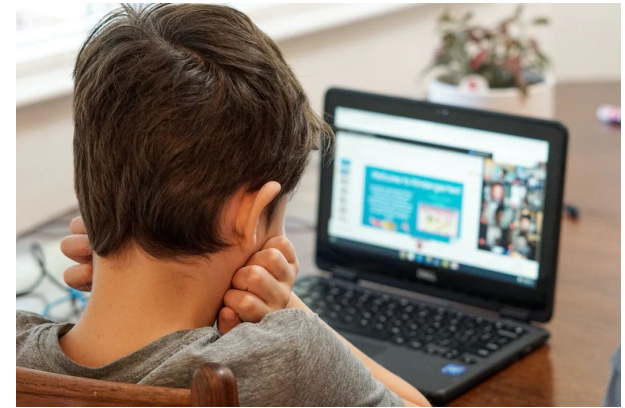
# Predicting Student Academic Success Using Virtual Learning Environment Interactions

By Josh Johnson



## In 2018 College Students Took Classes:

- 35.3%: some or all classes online.  
16.6% online-only
- After Covid-19: ????



*Photo by Thomas Park*  
[www.unsplash.com](https://www.unsplash.com)

1. <https://nces.ed.gov/fastfacts/display.asp?id=80>
2. <http://www.guide2research.com/research/online-education-statistics>

# Can Predictive Modeling Improve Student Success?



Photo by Frank Romero [www.unsplash.com](https://www.unsplash.com)

Only if we know who needs it!

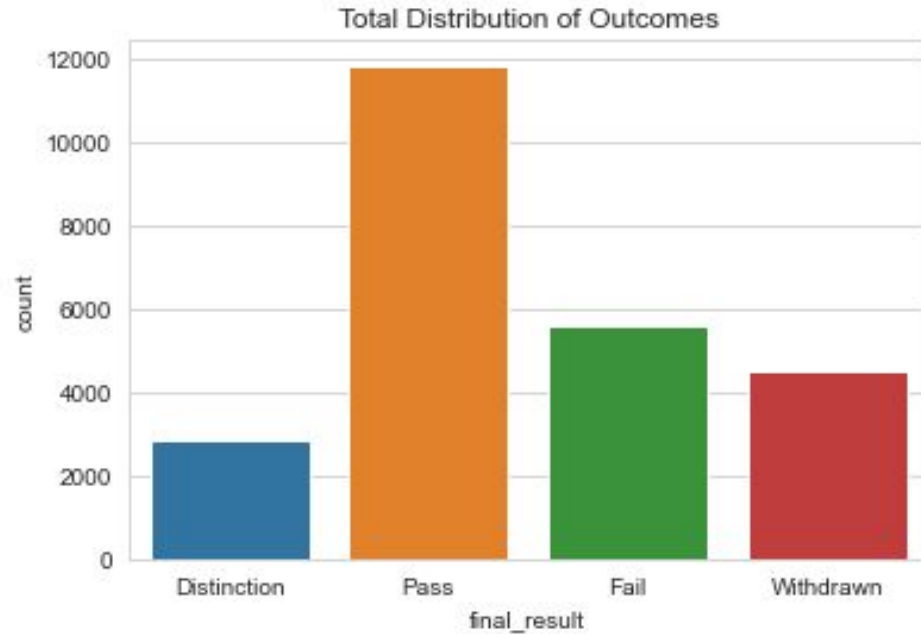
# The Data:

## Online University: Years 2013 - 2014

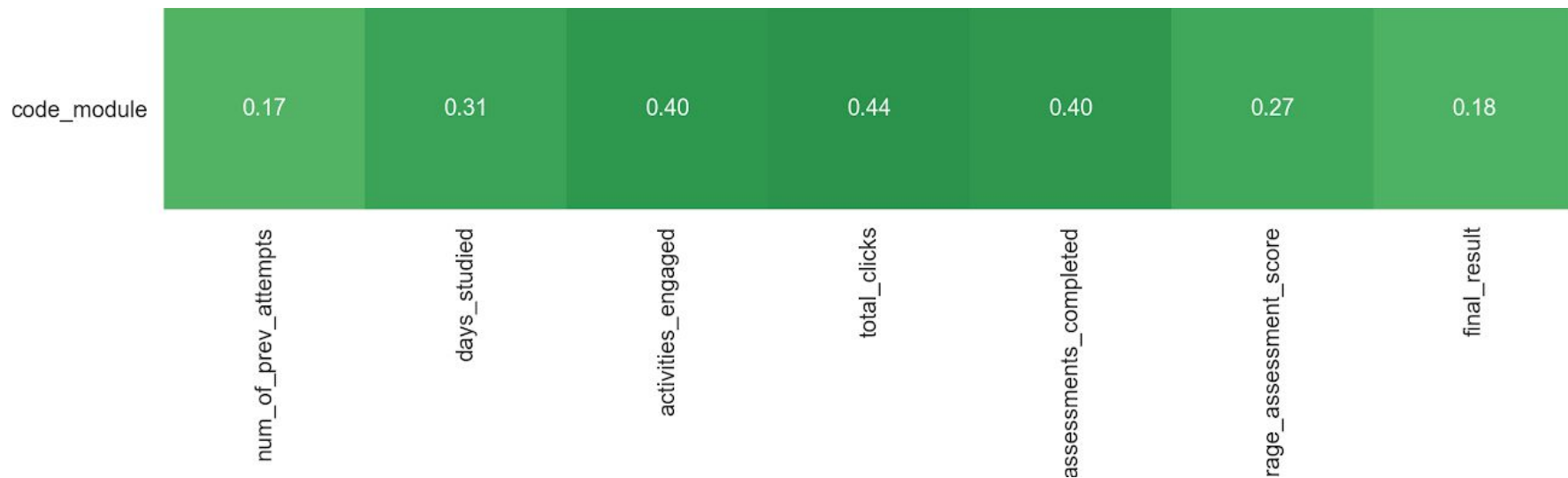
- 24743 registrations
- 22424 unique students
- 7 course modules
- 22 cohorts

**10,655,280 Student VLE interactions**

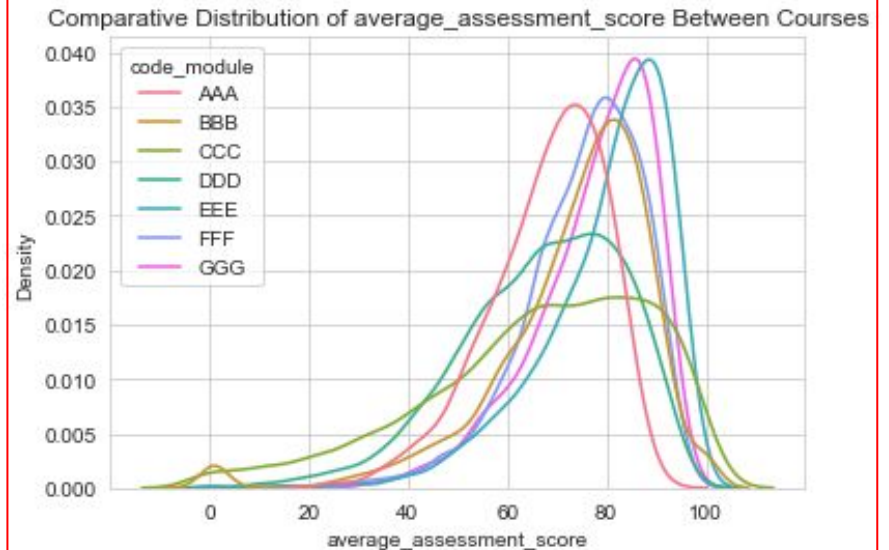
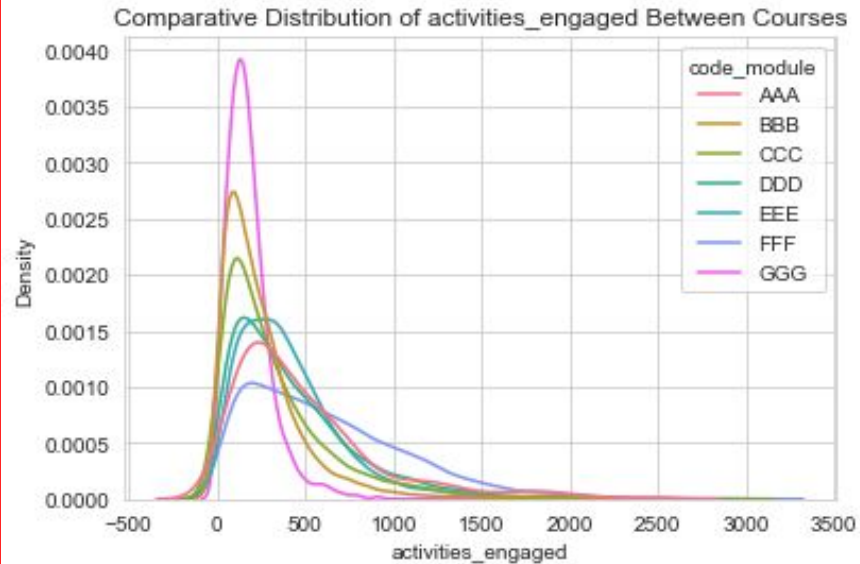
# Distribution of Outcomes



# Some Courses are Harder Than Others.



# Distributions of



## Normalized Features

	num_of_prev_attempts	days_studied	activities_engaged	total_clicks	assessments_completed	average_assessment_score	code_module
code_module	0.02	0.04	0.04	0.04	0.06	0.04	1.00
final_result	-0.12	0.43	0.40	0.35	0.37	0.49	0.00

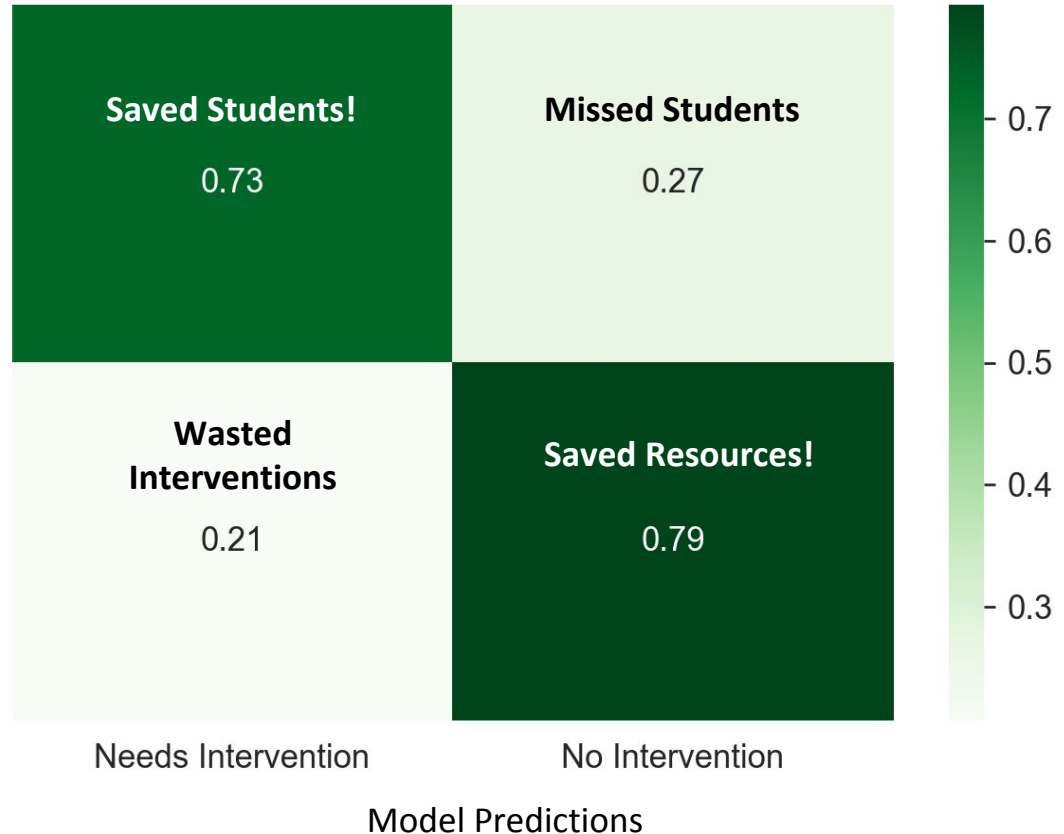


## After of 100 days of class

XGBoost: 77% Accuracy:

**Needs Intervention:**  
73% Accuracy

**No Intervention Needed:**  
79% Accuracy



## Next Steps:

- Try more model types to improve accuracy
- Evaluate model results to find insights
- Deploy model
- Apply model to larger and more diverse datasets.

# Contact:

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