

Phase 3 Case Study

Victorian Education

Elements of Data Processing

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What are the major key factors that determine a school's performance and the benefits they offer in Victoria (through the VCAA education system)

High Performing Schools

What separates them from normal schools?

- Selective entry?
- Number of students?
- Variety of subjects offered?
- Location?

Locality & educational availability

Does the locality influence education?

- What's the correlation?
- Differences between localities
- Do certain suburbs offer a larger variety of school sectors?

Diversity of Graduate Pathways

What do the statistics of graduate pathways suggest?

- Which sector is better for pathways
- Where do graduates mainly go

Before we start...

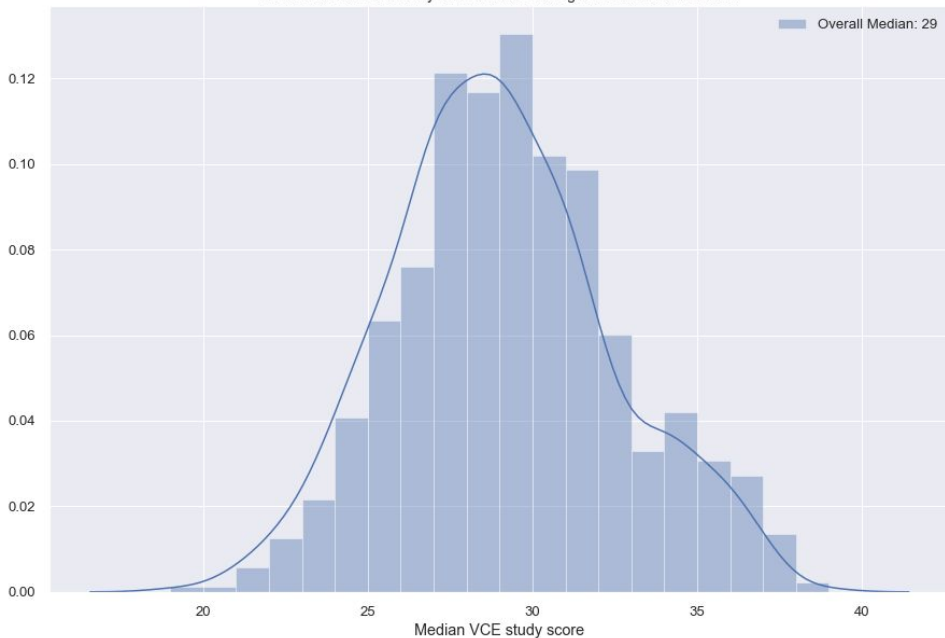
- Bad formatting (symbols such as *, Y, <, A filled the dataset)
- Missing statistical data on schools as well as large variances in housing prices
- Excel parsing (spreadsheets imported were terribly formatted and easier to fix in Excel)
- Merging housing prices with the VCAA dataset - same localities but different names (Example ALBERT PARK-MIDDLE PARK-WEST ST KILDA = ALBERT PARK, after fixing it an extra 44 localities were recovered)
- For the sake of this analysis I have ignored adult institutions and schools with less than 20 students under recommendation from VCAA's Head Data Analyst

Full Slides, Analysis and Details:

<https://github.com/akiratwang/Victorian-Education-Analysis/>

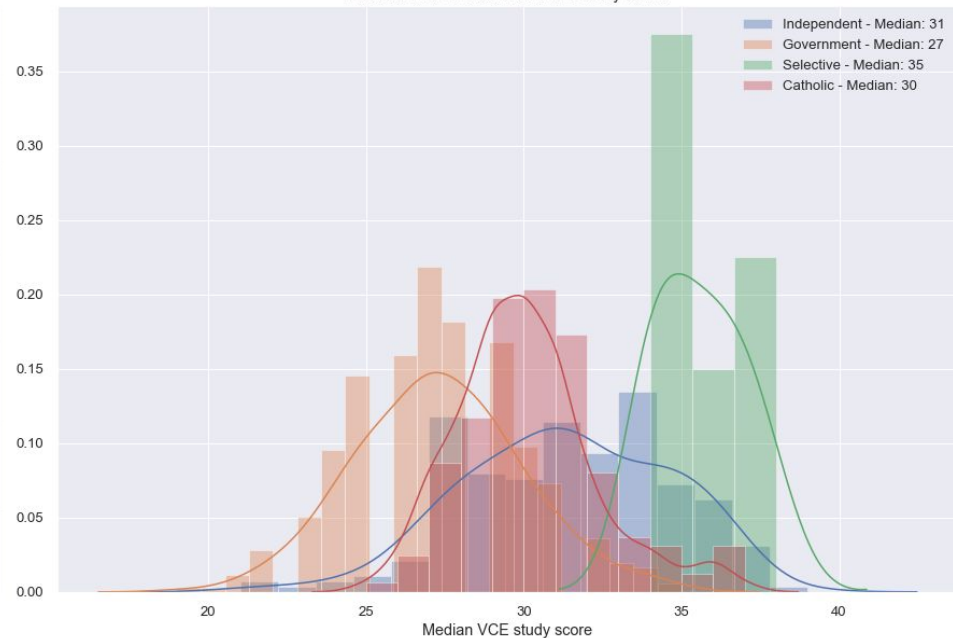
VCE Student Performance Distributions

Distribution of VCE study scores not including Adult or Small Schools



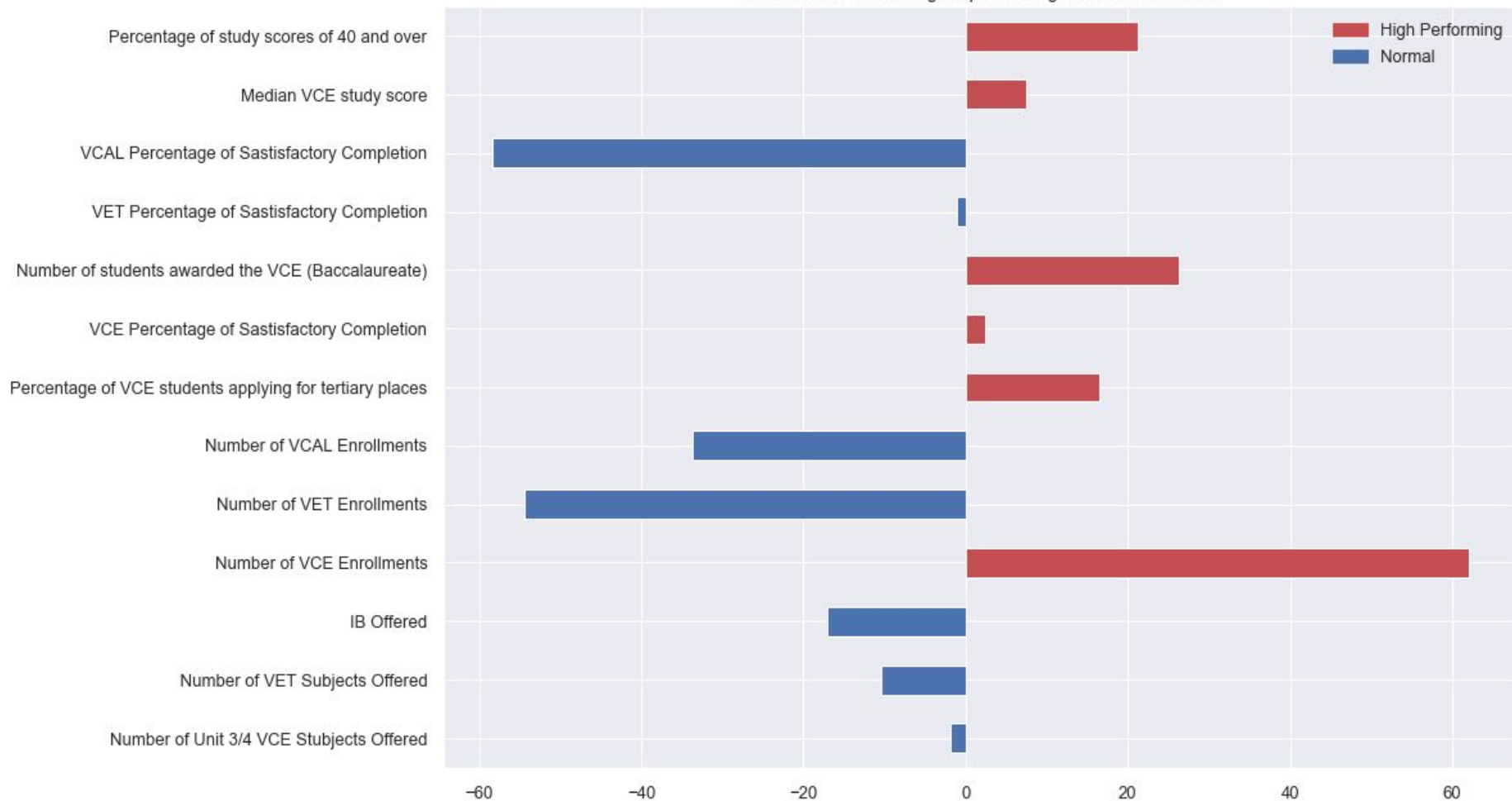
The actual median is 30 (calculated using a bell-curve)

Distribution of Sector Median VCE study scores



Selective entry schools perform well above any other sector overall

Differences between higher performing and normal schools



Correlation Heatmap (School attributes and Housing Prices)



Correlation:

Median VCE study score: 0.5542

Percentage of study scores of 40 and over: 0.5899

Top 5 Highest rental suburbs:
Average Cost Per Week: \$576
Average Median Study Score: 32

Top 5 Lowest rental suburbs:
Average Cost Per Week: \$232
Average Median Study Score: 25

Top 10 suburbs with the best availability

	Average Housing Price	Median VCE study score	Schools	Schools offering IB
Locality				
KEW	481.000	33.000000	10	3
BERWICK	385.000	32.428571	10	0
SHEPPARTON	266.875	27.500000	10	0
WERRIBEE	333.125	30.500000	9	2
BALLARAT	270.625	30.666667	9	0
CRANBOURNE	370.000	28.000000	9	0
ESSENDON	377.500	29.500000	9	0
BROADMEADOWS	339.375	28.800000	8	0
CANTERBURY	462.875	33.500000	8	0
WARRNAMBOOL	290.625	29.000000	8	0

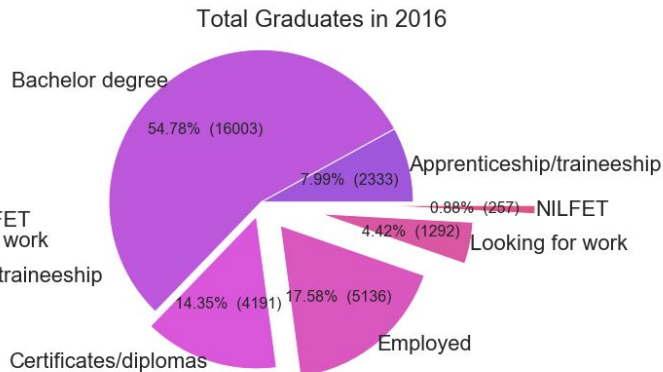
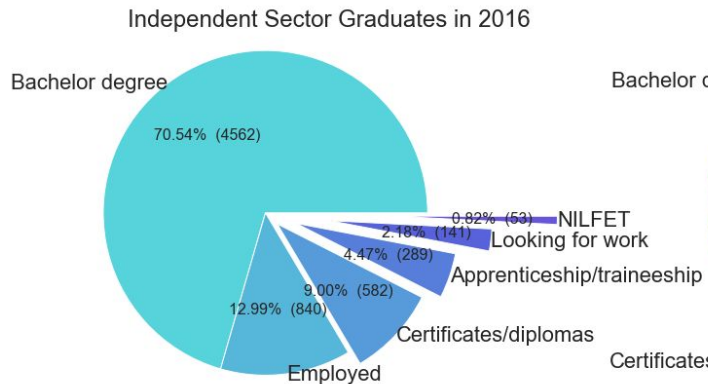
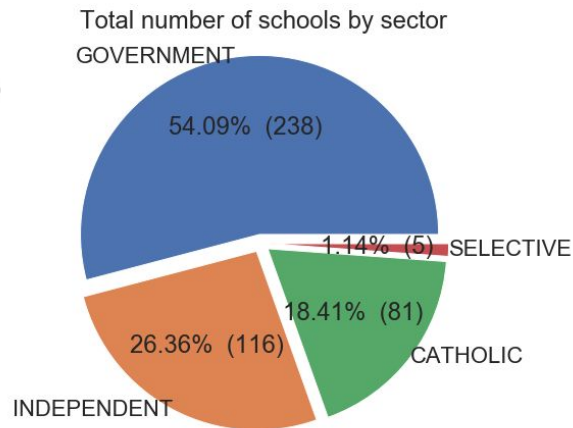
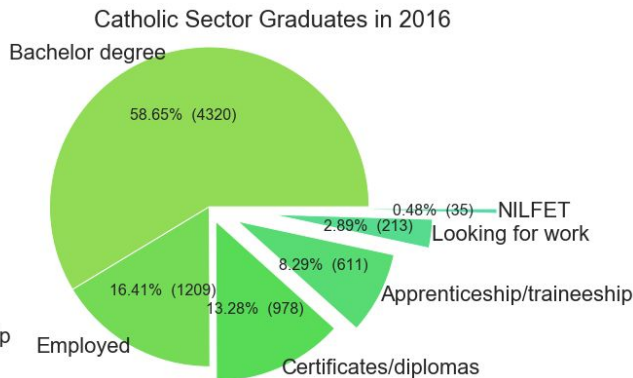
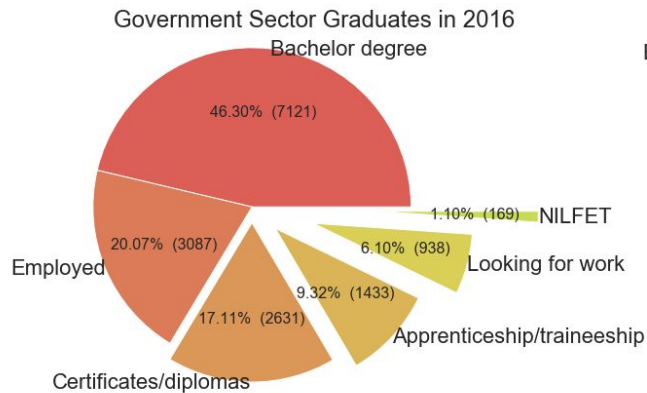
Overall, Kew offers the best with 10 schools in which 3 offer IB and a 33 median study score.

Top 5 overall schools

	Sector	Locality
School		
BENDIGO SENIOR SECONDARY COLLEGE	GOVERNMENT	BENDIGO
MACROBERTSON GIRLS HIGH SCHOOL	SELECTIVE	MELBOURNE
MELBOURNE HIGH SCHOOL	SELECTIVE	SOUTH YARRA
BIALIK COLLEGE	INDEPENDENT	HAWTHORN EAST
WERRIBEE SECONDARY COLLEGE	GOVERNMENT	WERRIBEE

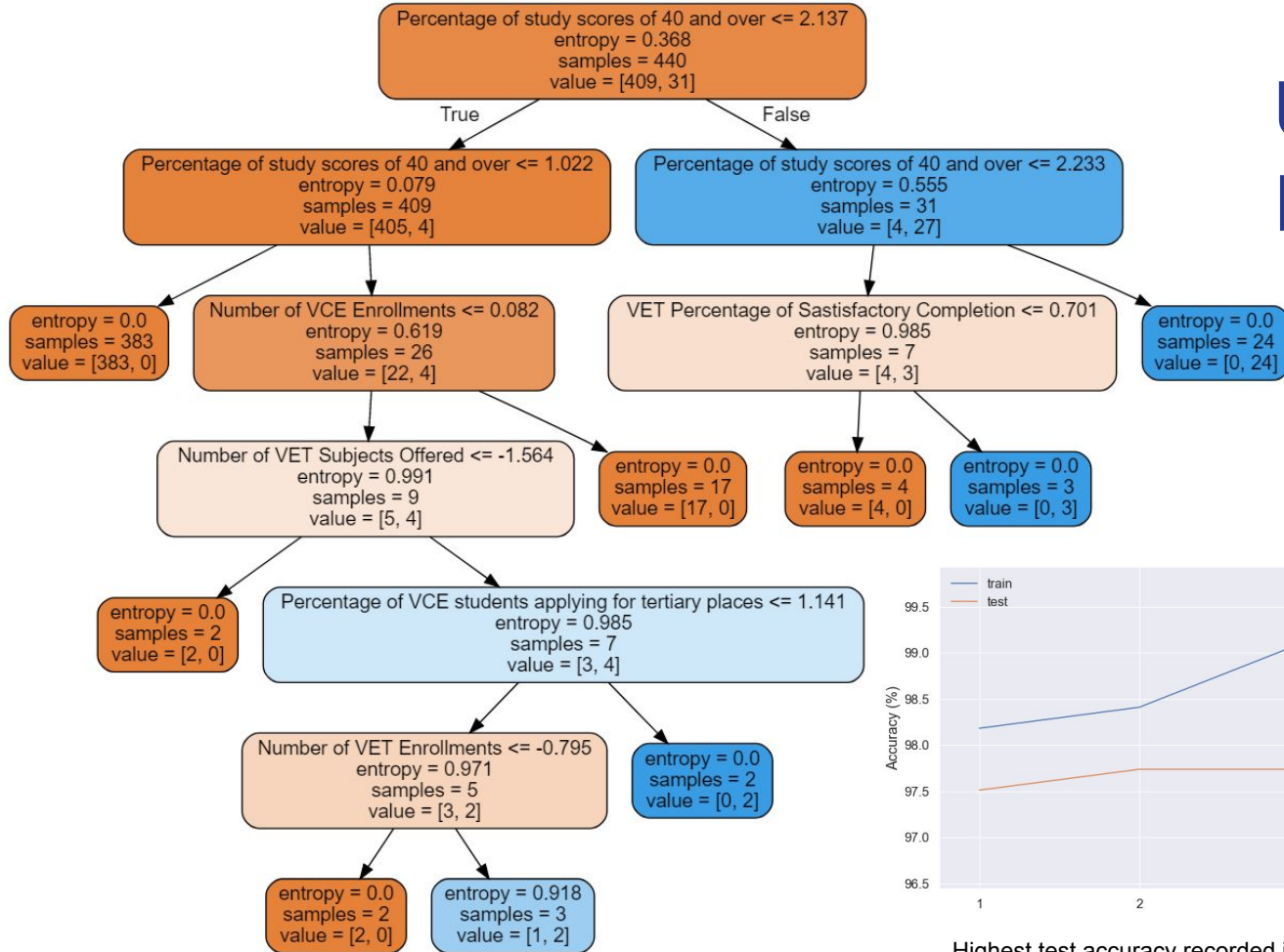
Note that Bendigo SSC and Werribee SC are **NOT** high achieving schools, but are overall top due to the sheer number of variety and student enrollments

2016 Graduate Pathway Statistics by Sector



NILFET: *Not in the labour force, employment or training*

Using a Decision Tree



Highest test accuracy recorded is 98.19% with train accuracy 99.77% with max_depth equal to [6]

Conclusion

- A high performing school will generally have a higher student enrollment count within a location with a higher rental cost per week.
- For households enrolling their children into a “local” school, their best chance would be to move to the Eastern suburban areas of Victoria which perform better compared to other suburbs
- Students that generally attend selective entry schools will perform significantly better compared to any other sectors as expected
- Sending your children to an independent school will yield in a better education compared to a local school - but is it really worth the money? (The cost can be from anywhere between 10k to 50k a year)
- Whilst most independent schools result in graduates pursuing a tertiary education, those in the government sector may choose to enter the workforce straight after graduating. Overall, half the students will end up studying at a tertiary level
- And yes, the location of your average local government school plays an important role in how it performs.