

# FINAL PRESENTATION

TEAM 9 - 9ROWTH

**Client:** EDU Talent

**Mentor:** Lulu Xu

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# Research Overview

NEWS



## Teacher shortage: how to attract our best and brightest to the profession

**RESEARCHER**  
Dr Janet Dutton

**WRITER**  
As told to Danielle Teutsch

**DATE**  
31 January 2024

**FACULTY**  
Faculty of Arts

**TOPIC**  
Our Stories  
Arts and Society  
Opinion

**SHARE**



*Opinion:* School of Education researcher Dr Janet Dutton says while everybody wants their children to be taught by the best teachers, they don't want their children to be teachers. Dr Dutton tackles some of the reasons behind the shortage and proposes steps that could return teaching to a profession our brightest students want to enter.

OPINION | WORK

## A growing problem looms for Australian schools as teachers flee



Simon Kuestenmacher

Apr 06, 2024, updated Apr 07, 2024

SHARE



So it is disappointing, but not surprising, to back this up: there are growing signs that the



Photo: AAP

Last year I published a column about the [dramatic teacher shortage](#) in Australia.

As I looked at more education data in the past year, my worries grew even more. It's time to revisit the issue and show you a few more scary data points.

Comment and Physics

## Why we should all be concerned about the shortage of science teachers

From Australia to the UK, the global shortage of science teachers will have a damaging effect on diversity and equity in science, says physics teacher **Alom Shaha**

By Alom Shaha

10 January 2024



Elaine Knox

TEN years ago, I was asked to predict what schools would look like in 100 years. I replied, somewhat facetiously, that they would look much the same as they did 10 years ago: classrooms full of children sat at desks, learning from teachers who would find it much more difficult to be light-hearted than serious. I was concerned that the way some students are being



The teachers we need for the education we want

The global imperative to reverse the teacher shortage

Fact sheet

World Teachers' Day 2023 focuses on the need to reverse global teacher shortages, including how to improve the profession's appeal. This fact sheet aims to highlight new global and regional data on the number of teachers needed to meet the Sustainable



# Data Analysis



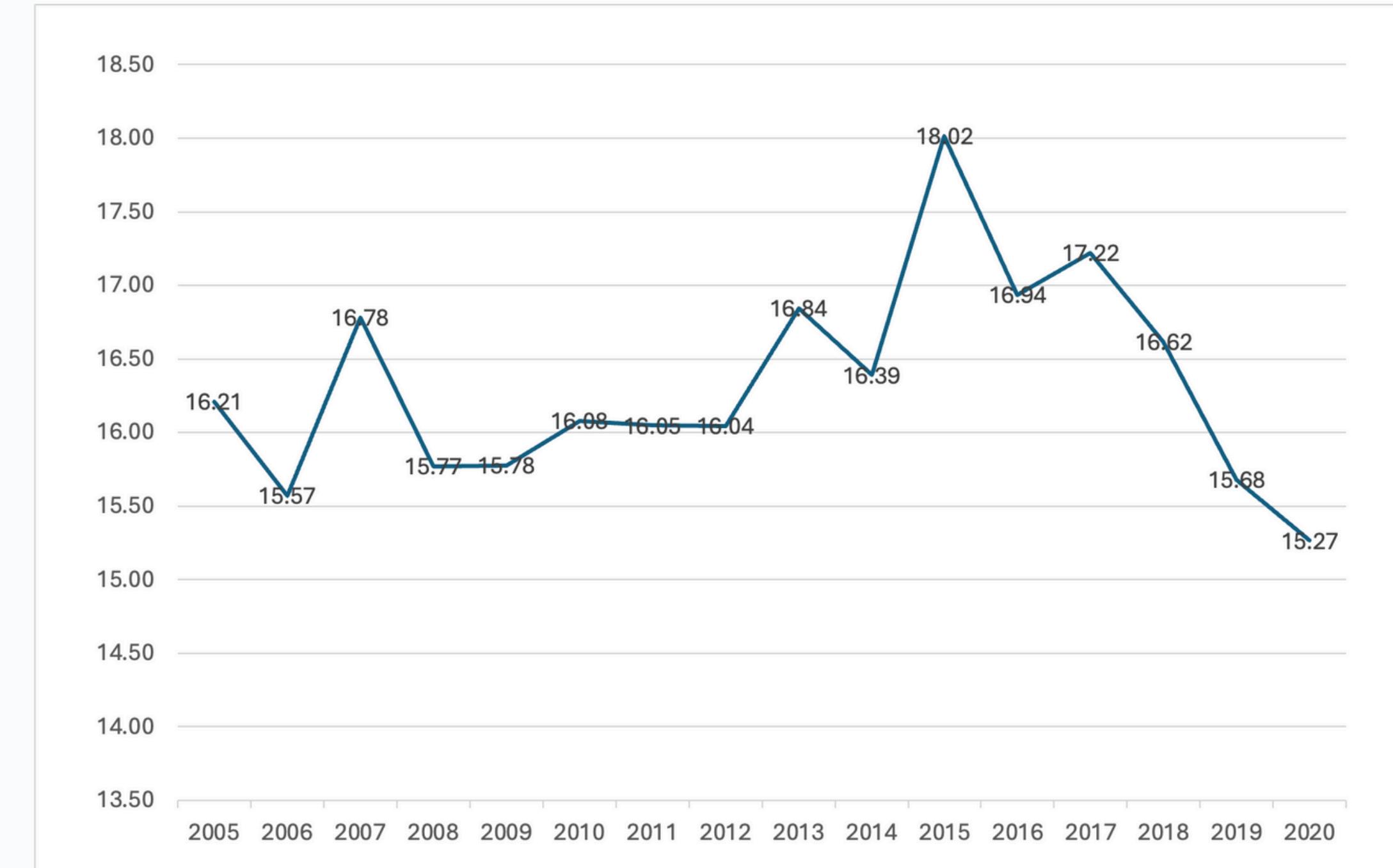


**Objective 1:**  
**Identify the best performing**  
**universities in Australia based**  
**on the attrition rate of**  
**education students.**

## Australian University Attrition Rate, 2005 to 2020

Historical data shows that before 2020, the average attrition rate in Australia was 17.4%. There was significant increases in 2007 and 2015.

Big new in 2007–2008 financial crisis, or the global financial crisis, was the most severe worldwide economic crisis.





Dropout rates at Australian universities have hit their highest level in eight years as booming enrollments of academically struggling students, particularly in regional and online courses, take their toll.

The national average attrition rate for first-year students reached 14.84 per cent in 2013, the highest since 2005. The worst affected institution was the University of Tasmania, where nearly one in three students dropped out, new federal Education Department data reveal.

It was followed by Swinburne University at 28 percent, Charles Darwin University (26 percent), Central Queensland University (25 percent) and University of Southern Queensland (24.73 percent).

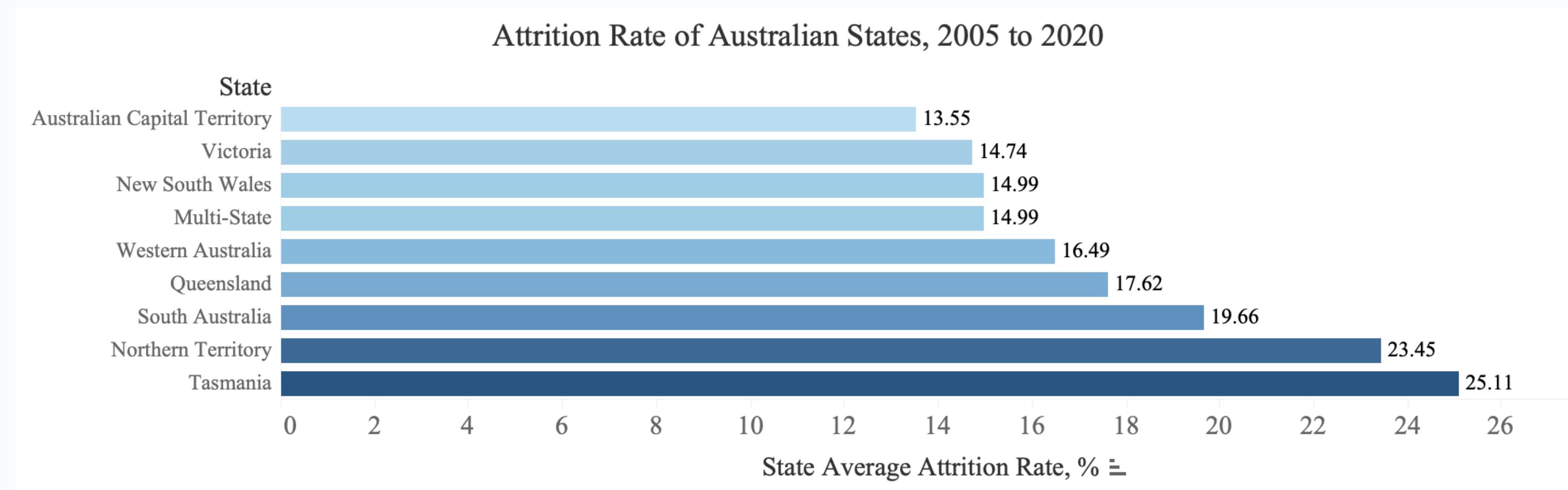
Attrition rates for last year are not yet available.

Experts say there is a direct correlation between increasing attrition rates and the introduction of the demand-driven system by Australia's higher education system in 2012, which allowed universities to enroll as many students as they deemed qualified.

THE AUSTRALIAN

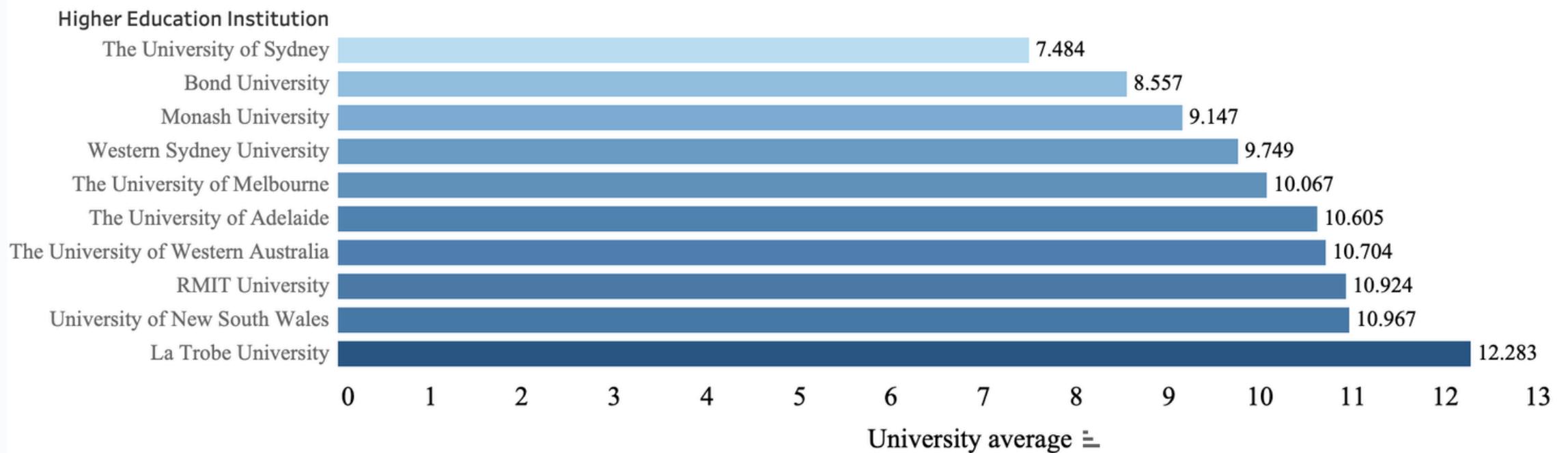
Demand-driven system by Australia's higher education systems in 2012, which boomed enrollments of academically struggled students.

## Attrition Rate of Australian States, 2005 to 2020

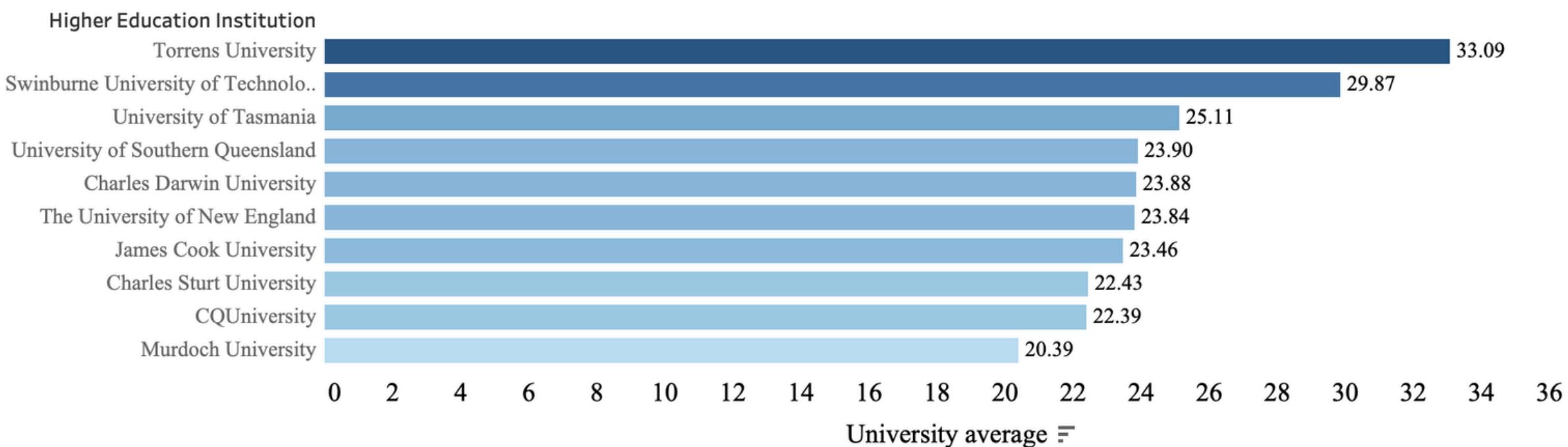


Australian Capital Territory has the lowest average attrition rate among all states at 13.55%, indicating relatively better student retention. Tasmania has the highest average attrition rate at 25.11% indicating significant challenges in retaining students.

## Top 10 Best Performance University, 2005 to 2020



## Australian University with Highest Attrition Rate

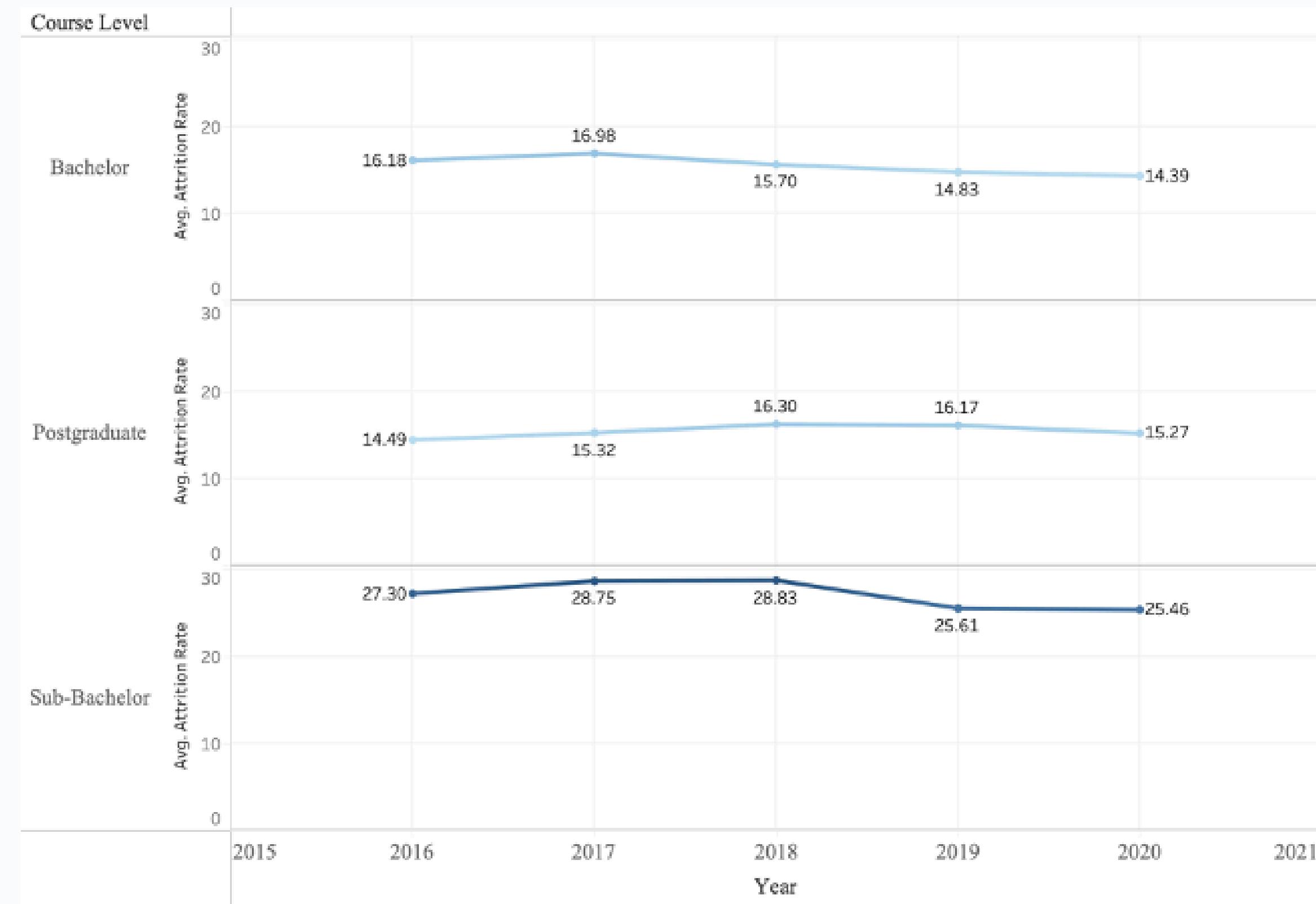


The attrition rate of all education students collected from **39 universities**, it can be observed that the best performance at **University of Sydney** is only 7.484%, followed by **Bond University**.

However, the highest attrition rate is **Torrens University**, which is 25.6% higher than **University of Sydney**.

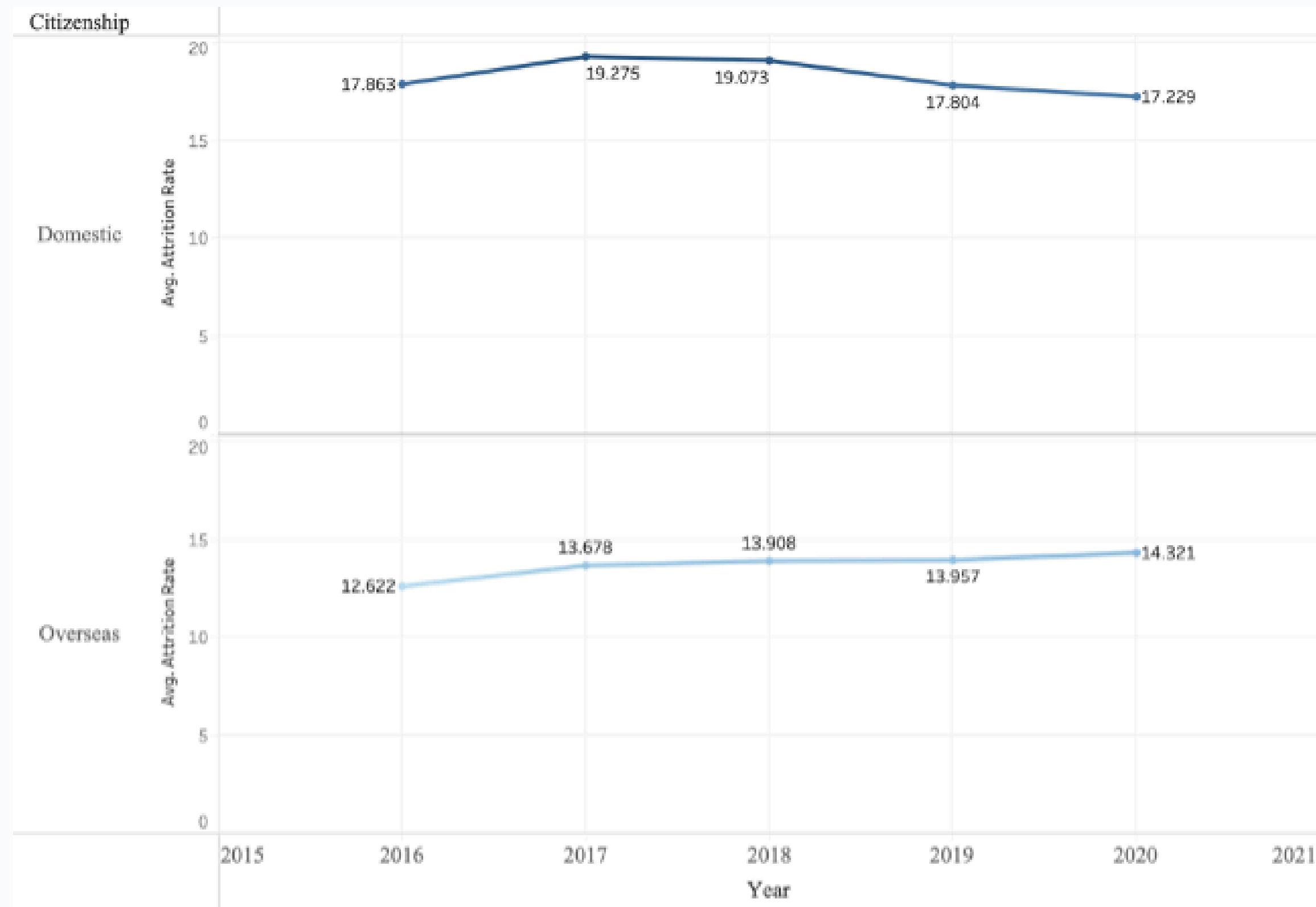
## Correlation Between Course Level and Attrition Rate

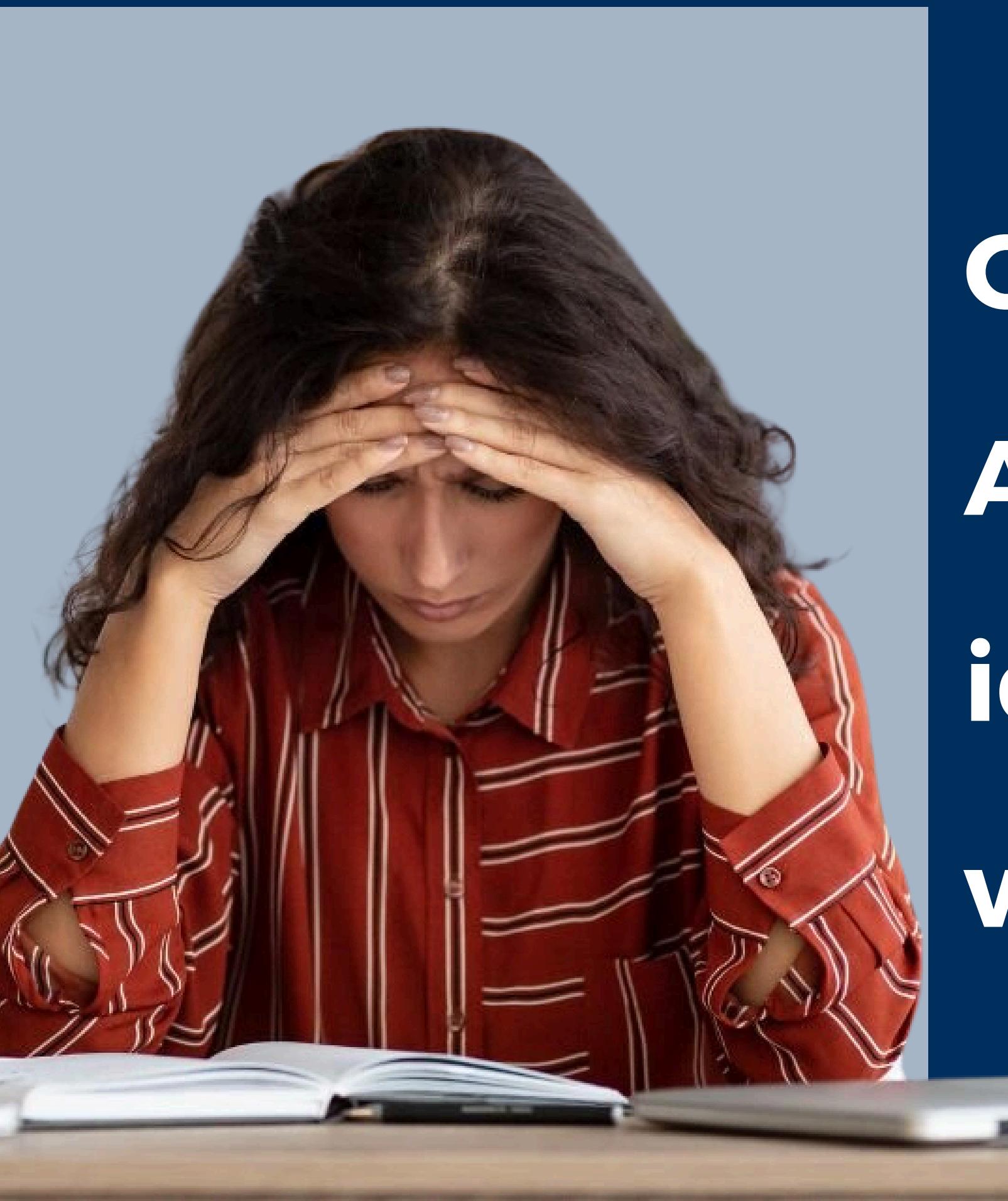
There are three different course levels. The average attrition rate for Bachelor is 15.61%, and the average attrition rate for postgraduate is 15.51%. However, The average attrition rate for Sub-bachelor is 27.19%



# Correlation Between Citizenship and Attrition Rate

According to citizenship data, from 2016 to 2020, the average domestic attrition rate was 18.25%, while overseas only accounted for 13.69% in Australia.





**Objective 2:**  
**Analyse historical data to**  
**identify trends in teacher**  
**workforce attrition rates**

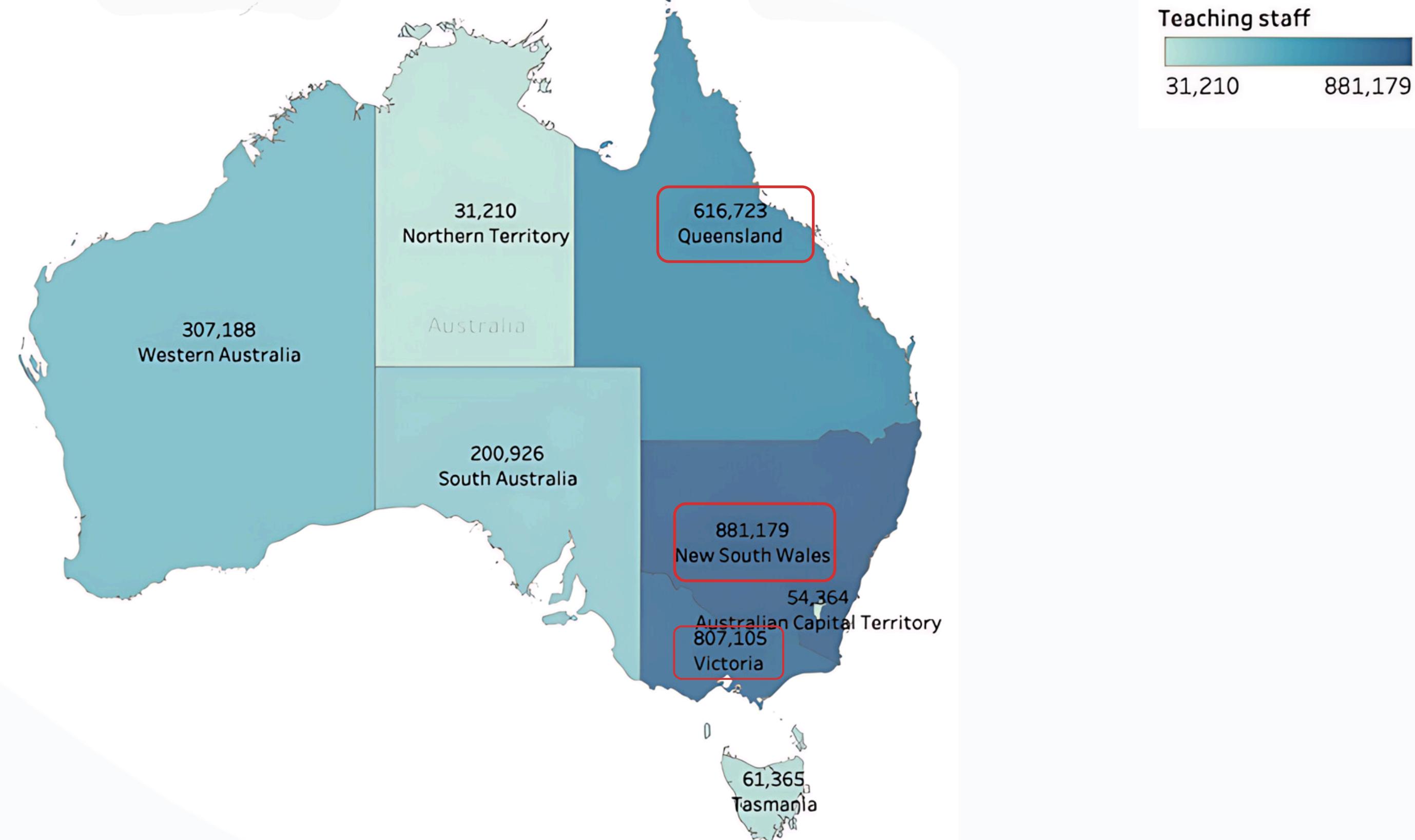
# TEACHER ATTRITION

“ \_\_\_\_\_

The **removal** of teachers from the **supply pool** when their **registration with the regulatory bodies** responsible for the accreditation, registration, and professional standards of teachers within their respective states **expires**.

\_\_\_\_\_ ,”

# Number of teaching staff by state in 2023



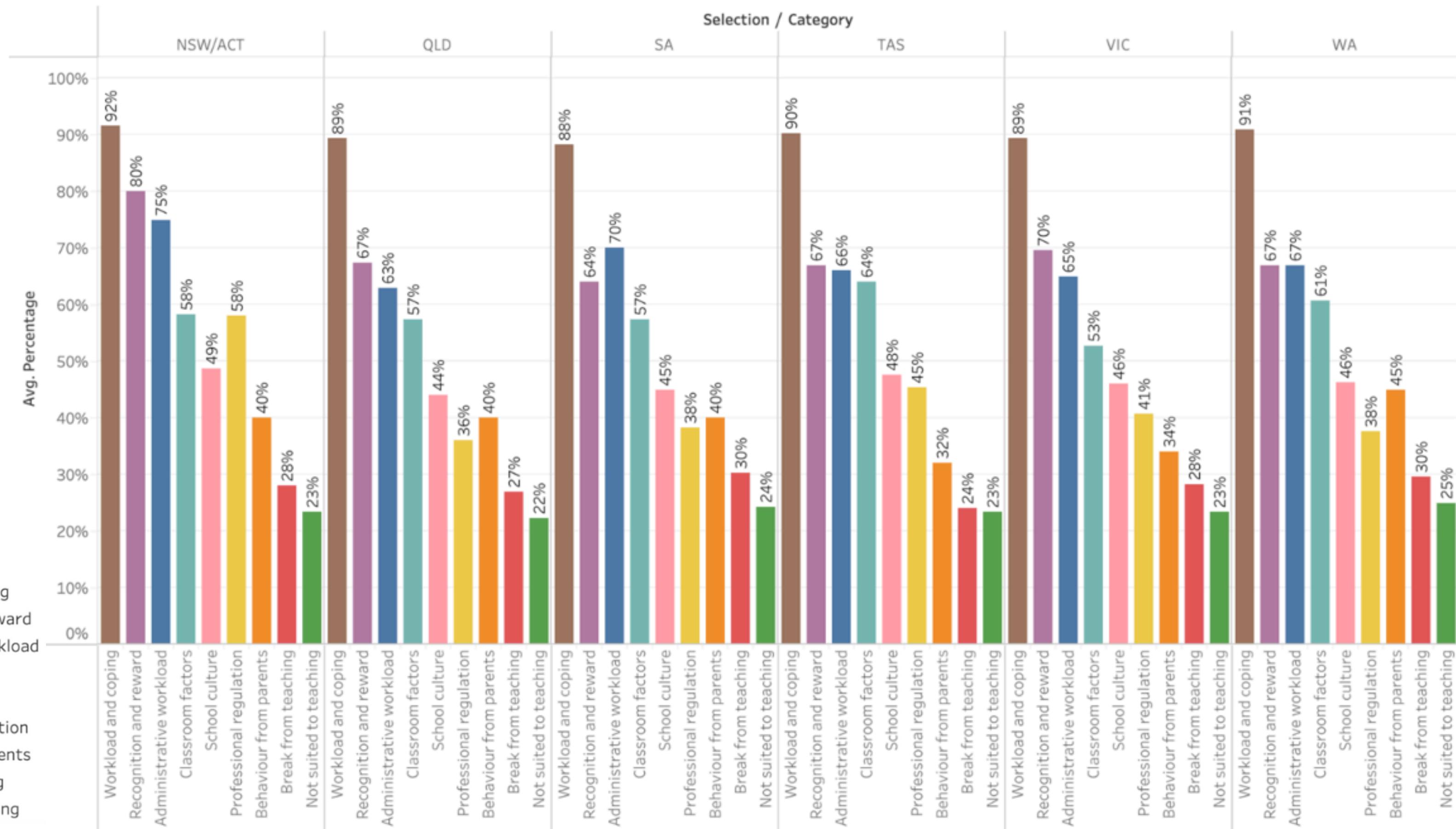
	New South Wales	Queensland	Victoria
2009	7.50%	13.19%	
2010	11.20%	15.96%	
2011	11.50%	14.58%	
2012	9.90%	13.38%	
2013	13.00%	13.94%	
2014	12.50%	14.27%	
2015	12.30%	9.09%	5.10%
2016	11.50%	5.46%	4.60%
2017	9.10%	3.51%	3.70%
2018	5.90%	0.96%	3.50%
2019			3.20%
2020			3.30%
2021			4.10%
Average	10.44%	10.43%	3.93%
Australia		8.27% (*)	

Workforce segment	2019	2020	2021	2022
Teacher workforce	26%	21%	26%	35%
Classroom teachers	28%	23%	28%	34%
Middle leaders	26%	21%	26%	35%
Senior leaders	19%	16%	20%	30%
Casual/relief teachers	23%	18%	22%	28%
Regional/remote teacher workforce	26%	23%	NR	NR
Metropolitan teacher workforce	26%	21%	NR	NR
Migrant teachers	33%	14%	NR	NR
Teachers with Australian ITE	25%	21%	NR	NR

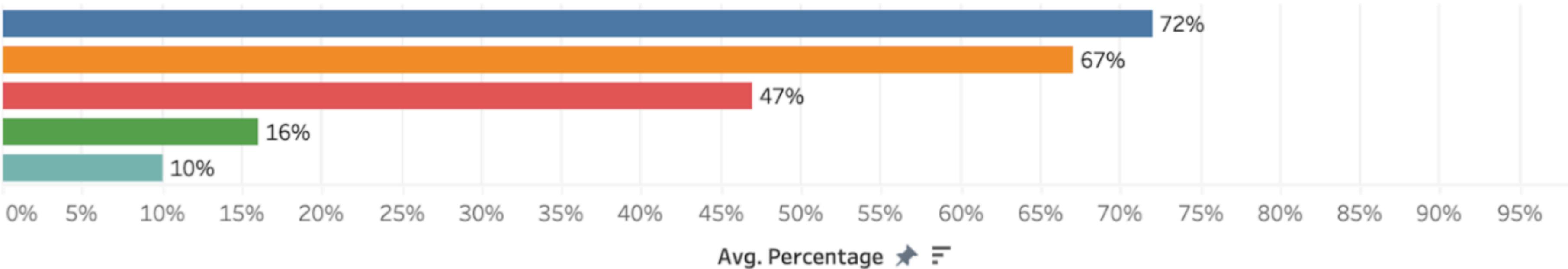
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Migrant teachers	33%	14%	NR	NR
Teachers with Australian ITE	25%	21%	NR	NR

## REASONS

## Reason for intending to leave by states



## Reason for staying



## Category

- Enjoy teaching
- Rewarding profession
- School culture
- Skills not transferable
- Well paid

# REASONS TO STAY



# Objective 3:

# Predicting

# National Intake of

# Education Students

## Summary of the Process:

### 1. Number of needed teachers:

- Number of needed teacher = Number of student / Student-teacher ratio in year
- Number of students is based on school-aged population predictions.
- The student-teacher ratio is detailed by state/territory and school level (primary and secondary).

### 2. Number of remaining teaching staff from the previous year:

Number of remaining teaching staff from the previous year = Number of teaching staff in the previous year×(1-teacher attrition rate)

### 3. Required ITE completions:

Required ITE completions = Number of needed teachers - Number of remaining teaching staff from the previous year

### 4. Required ITE enrollments:

Required ITE enrolments = Required ITE completions×(1 - Attrition rate (average by all universities))

## Step 1: Estimate Number of Enrolled Students

- Divide Students by School Level: Primary (ages 5-11) and Secondary (ages 12-17).
- Assumption: 99.3% enrolment rate means the population in these age groups equals the number of students.
- Data Source: Australia's population predictions from the ABS.
- Example: Estimate primary school students in South Australia.

Calendar year	State/Territory	School sector	School level	Number of students
2024	South Australia	All	Primary	150,082
2025	South Australia	All	Primary	149,917
2026	South Australia	All	Primary	150,191
2027	South Australia	All	Primary	150,307
2028	South Australia	All	Primary	149,901
2029	South Australia	All	Primary	150,399
2030	South Australia	All	Primary	151,282
2031	South Australia	All	Primary	152,525
2032	South Australia	All	Primary	154,252
2033	South Australia	All	Primary	155,604

Age	Male	Female
5	10,443	10,012
6	10,710	10,088
7	10,784	10,308
8	11,145	10,688
9	11,093	10,541
10	11,336	10,713
11	11,413	10,808

## Step 2: Estimate Student-Teacher Ratio

- Calculate Annual Change:

$$\text{Change in student - teacher ratio in year } n = \frac{\text{Student-teacher ratio in year } n}{\text{Student-teacher ratio in year } (n-1)} - 1$$

- Predict Future Ratio:

*Student - teacher ratio in year n*

$$= (1 + \text{Change in student - teacher ratio in year } n) * \text{student - teacher ratio in year } (n - 1)$$

Year	State/Territory	School sector	School level	Student-teacher ratio	Annual change in student-teacher ratio
2024	South Australia	All	Primary	13.88	-0.87%
2025	South Australia	All	Primary	13.76	-0.87%
2026	South Australia	All	Primary	13.64	-0.87%
2027	South Australia	All	Primary	13.52	-0.87%
2028	South Australia	All	Primary	13.40	-0.87%
2029	South Australia	All	Primary	13.29	-0.87%
2030	South Australia	All	Primary	13.17	-0.87%
2031	South Australia	All	Primary	13.06	-0.87%
2032	South Australia	All	Primary	12.94	-0.87%
2033	South Australia	All	Primary	12.83	-0.87%

## Step 3: Estimate Number of Needed Teachers

- Formula:

$$\text{Number of needed teachers} = \text{Number of students} \times \text{student - teacher ratio}$$

Year	State/Territory	School sector	School level	Student-teacher ratio	Number of students	Number of teachers
2024	South Australia	All	Primary	13.88	150,082	10,814
2025	South Australia	All	Primary	13.76	149,917	10,897
2026	South Australia	All	Primary	13.64	150,191	11,012
2027	South Australia	All	Primary	13.52	150,307	11,118
2028	South Australia	All	Primary	13.40	149,901	11,185
2029	South Australia	All	Primary	13.29	150,399	11,320
2030	South Australia	All	Primary	13.17	151,282	11,486
2031	South Australia	All	Primary	13.06	152,525	11,682
2032	South Australia	All	Primary	12.94	154,252	11,918
2033	South Australia	All	Primary	12.83	155,604	12,128

## Step 4: Estimate the number of remaining teaching staff from the previous year

With a teacher attrition rate of **8.27%**, as calculated in task 2, the remaining 2023 teaching staff in 2024 is calculated as follows:

**Number of remained teaching staff from previous year = Number of teaching staff in previous year × (1-teacher attrition rate)**

$$= 311,655 * (1 - 8.27\%) = 285,891$$

Year	State/Territory	School sector	School level	Number of teaching staff in 2023
2023	New South Wales	All	Primary	46,752
2023	New South Wales	All	Secondary	45,213
2023	Queensland	All	Primary	32,597
2023	Queensland	All	Secondary	33,173
2023	South Australia	All	Primary	10,649
2023	South Australia	All	Secondary	10,382
2023	Victoria	All	Primary	43,059
2023	Victoria	All	Secondary	41,580
2023	Western Australia	All	Primary	16,526
2023	Western Australia	All	Secondary	16,052
2023	Tasmania	All	Primary	3,281
2023	Tasmania	All	Secondary	3,258
2023	Australian Capital Territory	All	Primary	2,936
2023	Australian Capital Territory	All	Secondary	2,759
2023	Northern Territory	All	Primary	1,963
2023	Northern Territory	All	Secondary	1,467
2023	<b>Total</b>			<b>311,655</b>

## Step 5: Estimate required ITE completions

### Required ITE completions

= Number of needed teachers - Number of remaining teaching staff from the previous year  
=  $332,673 - 285,891 = 46,782$

Year	State/Territory	School sector	School level	Number of needed teachers in 2024
2024	New South Wales	All	Primary	48,507
2024	New South Wales	All	Secondary	51,645
2024	Queensland	All	Primary	32,907
2024	Queensland	All	Secondary	36,729
2024	South Australia	All	Primary	10,814
2024	South Australia	All	Secondary	10,977
2024	Victoria	All	Primary	44,256
2024	Victoria	All	Secondary	45,247
2024	Western Australia	All	Primary	16,893
2024	Western Australia	All	Secondary	18,001
2024	Tasmania	All	Primary	3,392
2024	Tasmania	All	Secondary	3,724
2024	Australian Capital Territory	All	Primary	2,899
2024	Australian Capital Territory	All	Secondary	2,672
2024	Northern Territory	All	Primary	2,126
2024	Northern Territory	All	Secondary	1,884
2024	<b>Total</b>			<b>332,673</b>

## Step 6: Estimate required ITE enrolments

Then, the required ITE enrolments can be calculated as follows:

**Required ITE enrolments**

= Required ITE completions - Attrition rate (average by all university)

$$= 46,782 - 16.34\% = 55,921$$

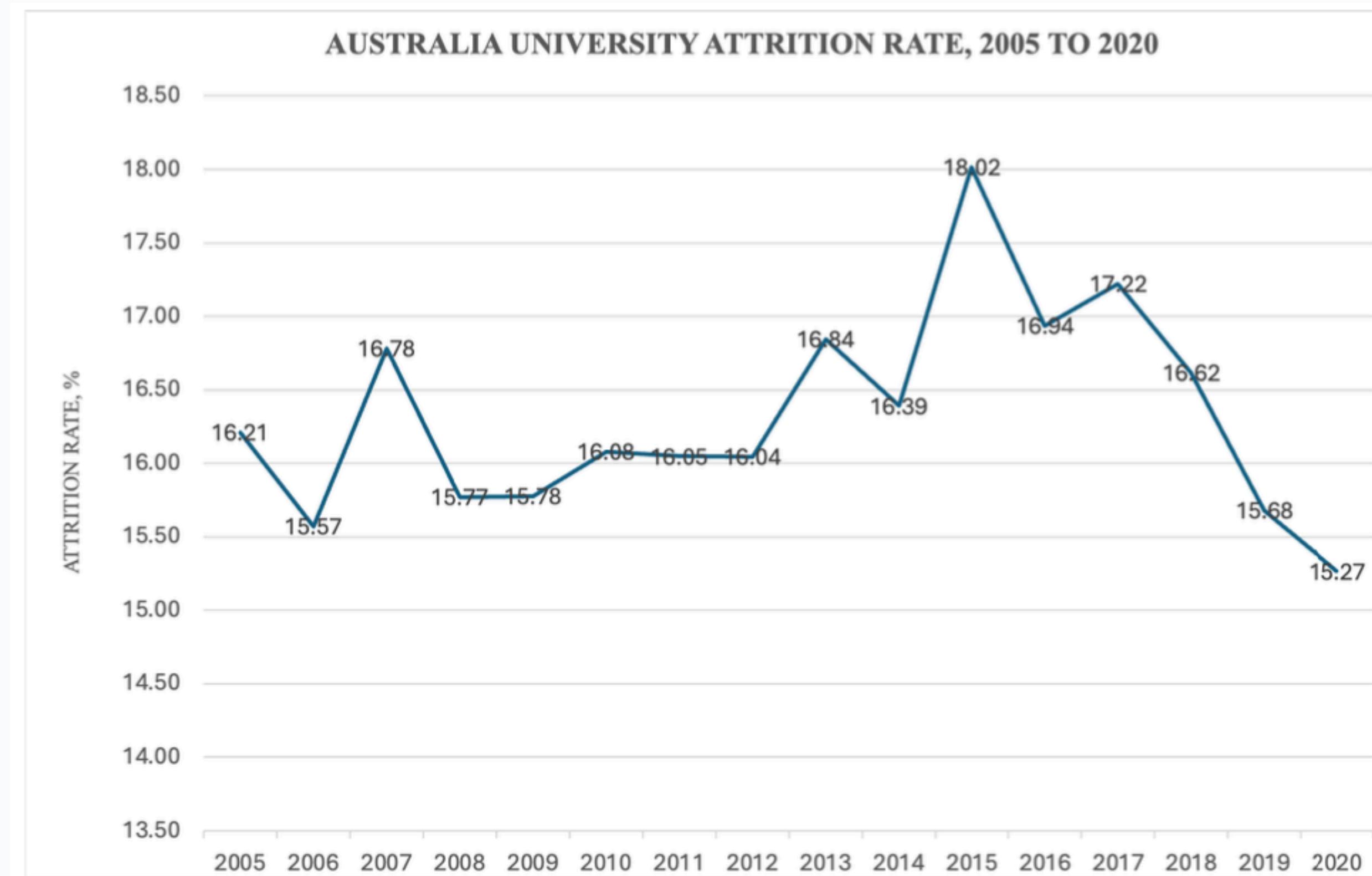
## Step 7: Estimate required ITE enrolments for the next 10 years

Following the formula above, we can calculate the required ITE enrolments for the next ten years.

Year	Sum of the Number of needed teachers	Remained staff from previous year	Required ITE completion	Required ITE enrolment
2024	332673	285,891	46,782	55,921
2025	337027	305,172	31,855	38,078
2026	341061	309,166	31,895	38,126
2027	345337	312,867	32,470	38,814
2028	348742	316,789	31,953	38,195
2029	352660	319,913	32,747	39,145
2030	356560	323,507	33,053	39,510
2031	360642	327,084	33,558	40,113
2032	365169	330,829	34,340	41,048
2033	370241	334,982	35,259	42,147

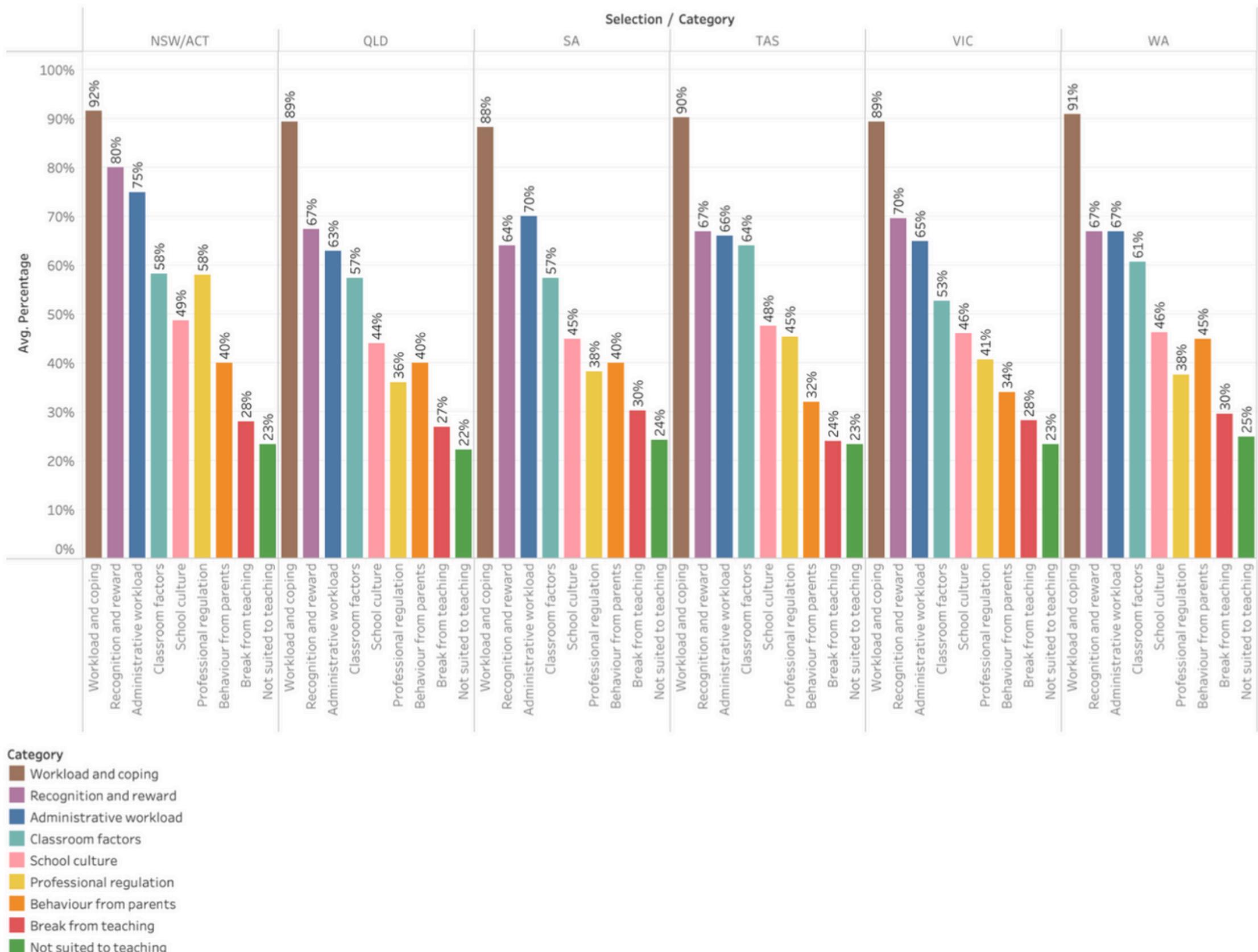
# RECOMMENDATIONS





Source: Australian Government, Department of Education (n.d.). Attrition, retention and success rates for commencing higher education students.

Reason for intending to leave by states

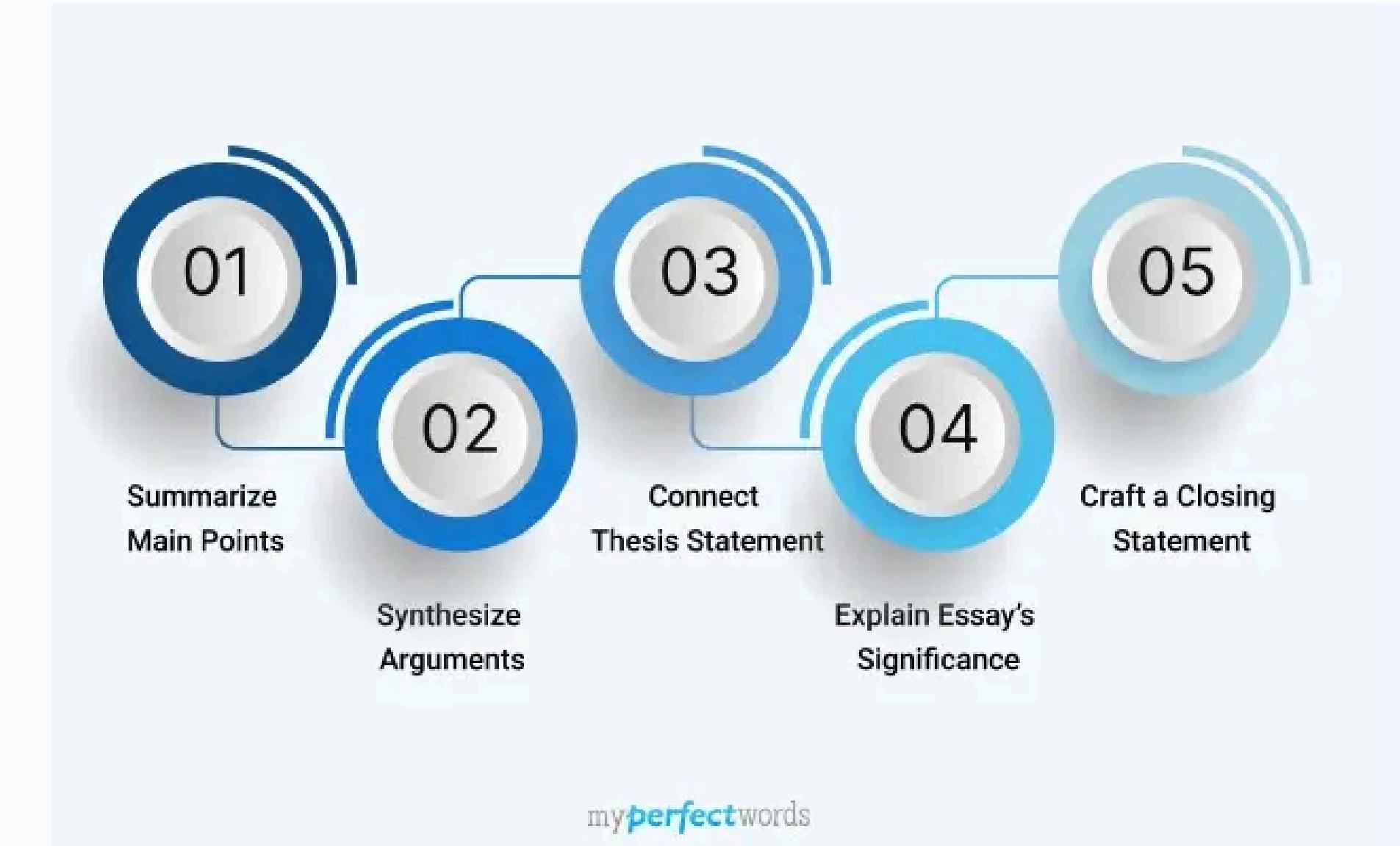


## Workload & Administrative work

# CONCLUSION

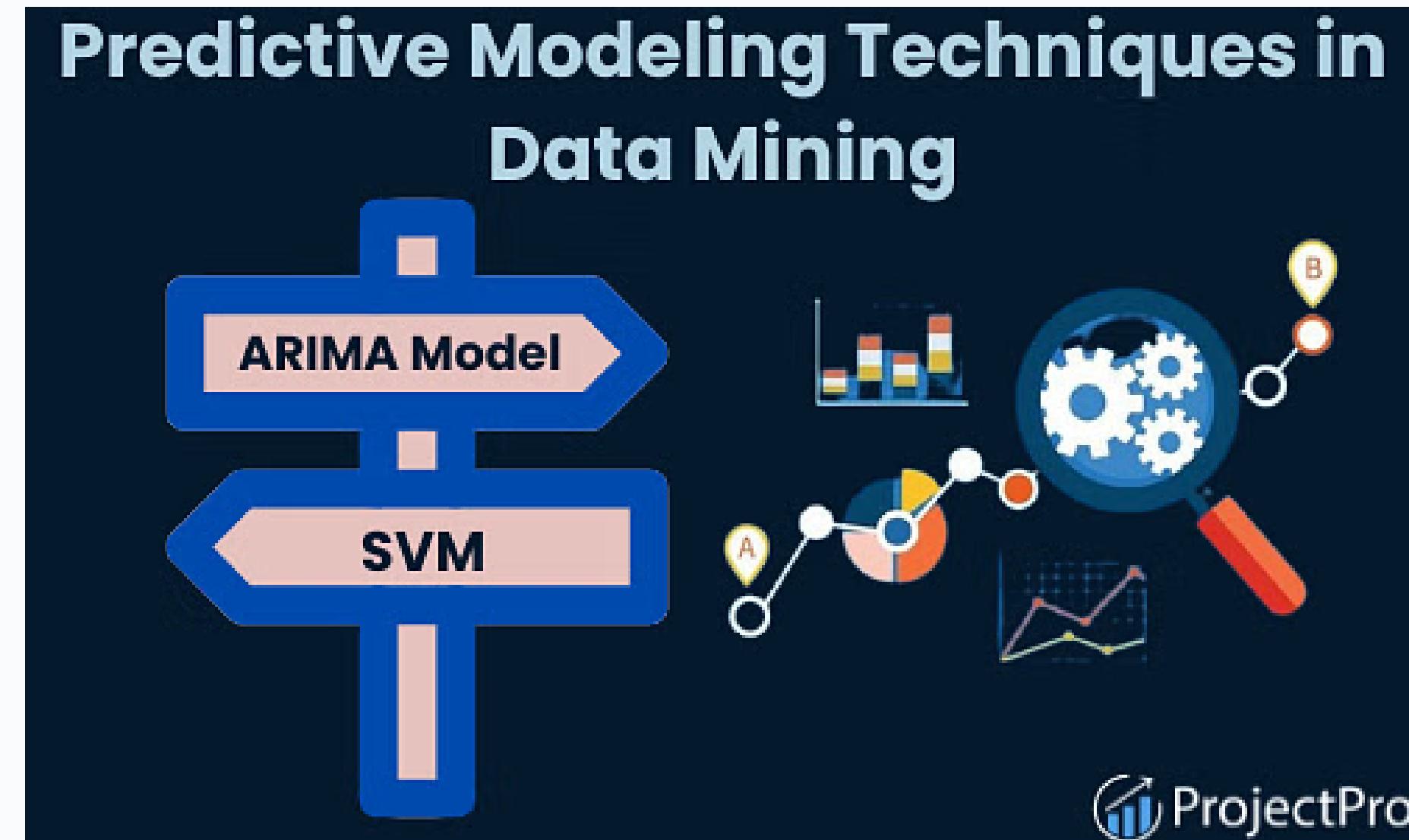
# Summary Findings:

- Comprehensive analysis
- Top-performing university
- Historical trends



Source: Learn How to Write a Conclusion in Simple Steps

- Predictive model
- Limitation
- Recommendation



Source: Predictive Modeling Techniques

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# Thank You for Your Attention