Australian Government
Tertiary Education Quality and Standards Agency

TEQSA Occasional Forum Series

Student Attrition in Higher Education

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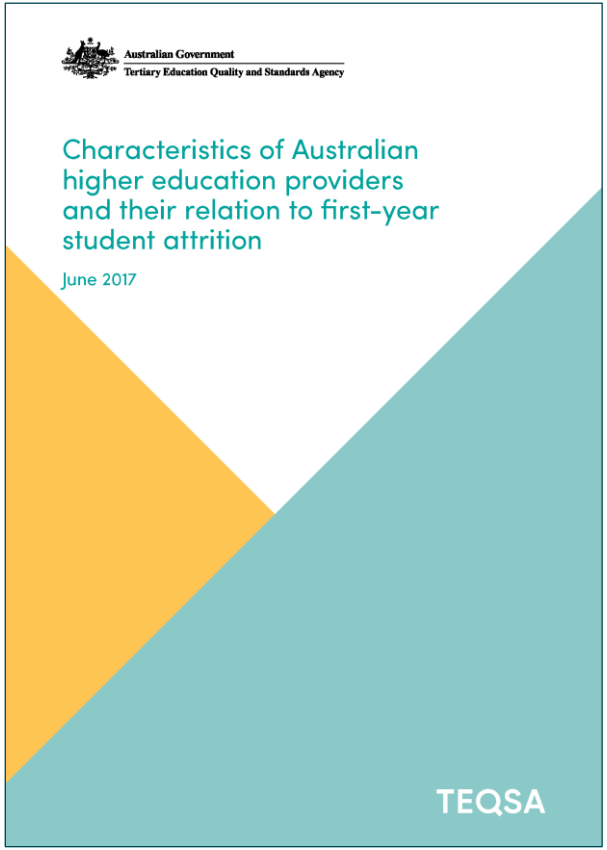
TEQSA

Characteristics of Australian higher education providers and their relation to first-year student attrition

Dr Lin Martin
Commissioner



Aim of the project

- To identify characteristics of higher education institutions which are associated with high levels of attrition
- How these characteristics might assist in identifying potentially high risk institutions and actions which might address these high levels of attrition

Data used in the project

- Institutions were included in the study if a first-year attrition rate was available for the most recent reporting year (2014)
- In total, 173 institutions were registered in March 2014 with 18 of these not having data from which to calculate attrition rates
- 155 institutions were considered for the study (130 HEIMS and 25 PIR institutions)
- Only HEIMS institutions were used (130)

Definition of first-year student attrition

- First-year attrition is defined in TEQSA's Risk Assessment Framework (RAF) as

  The number of first-year commencing students (higher education only) in a year who neither complete nor return to study in the following year as a percentage of the total commencing students

- Attrition includes both undergraduate and postgraduate, and domestic and international first-year students

- Raw attrition rates used and not the adjusted rates which appear in the our risk assessments for some providers

Distribution of risk-rated providers by risk category for first-year student attrition 2012-2014

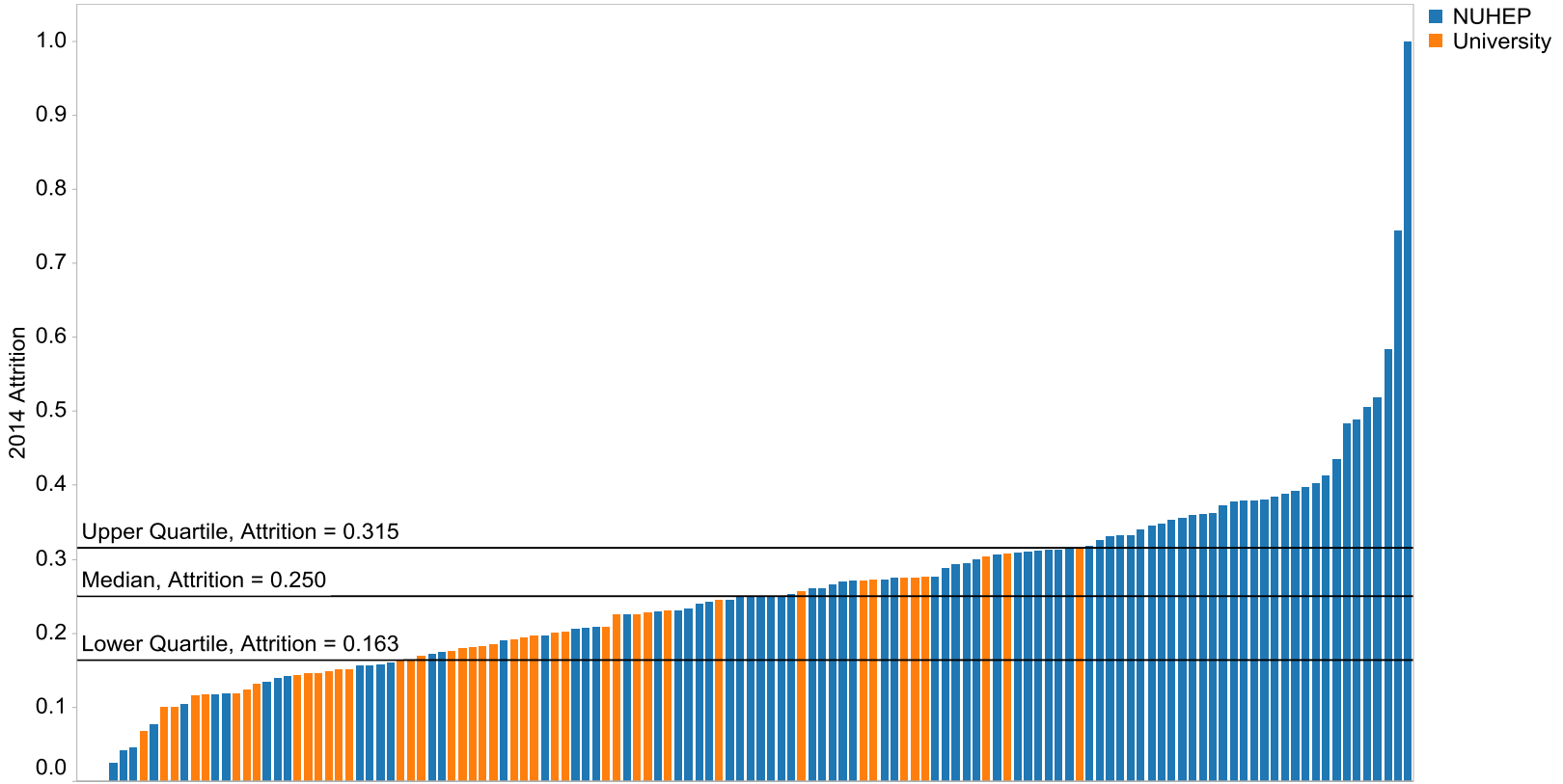
- Large proportion of providers are high or moderate risk in terms of attrition – polarised distribution, slightly worsening in the last three years

Year	No. of rated providers	% High risk	% Moderate risk	% Low risk
2012	153	41.8%	16.4%	41.8%
2013	153	40.5%	21.6%	37.9%
2014	164	40.2%	22.0%	37.8%

Diversity of the sector

- Considerable diversity of the institutions in the sector and wide range of attrition values across 130 providers
- Half the providers have attrition rates of 25% or higher
  one quarter have rates higher than 32%
- On average non-university providers have higher rates of attrition than the universities

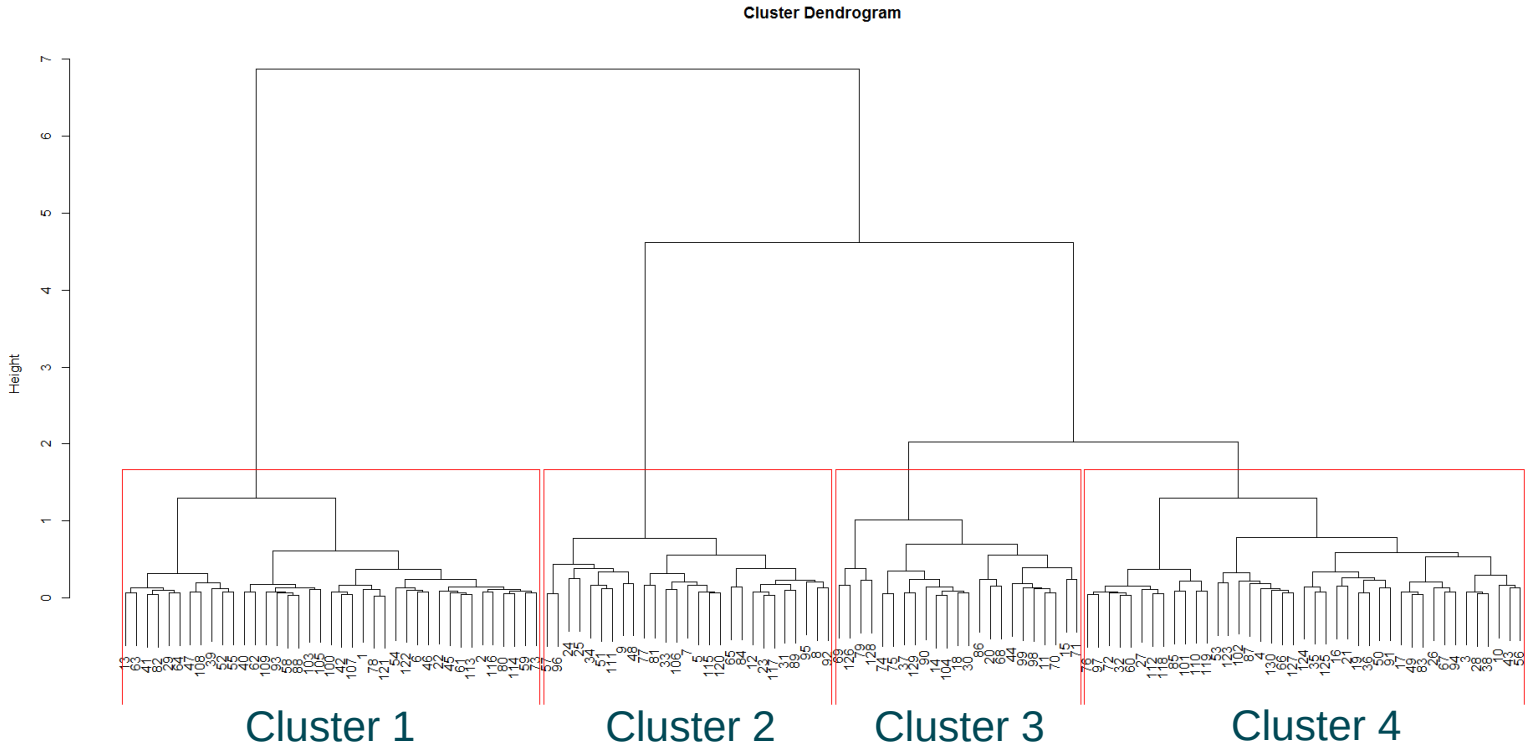
Attrition rate by provider 2014



Finding the characteristics associated with high attrition

- First tried multivariate regression model for whole sector
- Not a very good fit
- Could do better by segmenting the sector
- Used **Hierarchical Cluster Analysis** with 17 discriminator variables
- Cluster analysis is an exploratory process
- Produces groups which have more in common than differences between them

A four segment solution for the Australian higher education sector



Description of clusters

- Clusters can be defined according to their profile
- Average values used for each segmentation variable
- Differentiating variables are those with average at least twice the values for the same variable in the other clusters

The segments

- Cluster analysis resulted in four groups:
  - **Universities** public and two private universities (39)
  - **Small providers** with high percentages of external, part-time and postgrad students; Society and Culture; mature aged entrants (these are the mainly the faith-based institutions) (27)
  - **Medium sized providers** focused on **international** students, Management and Commerce, and students with prior VET studies (23), and
  - **Medium sized** institutions large percentages of **undergraduate domestic students** across a range of fields (these are the TAFEs, pathway and for-profit providers) (41)
- Then fit a multivariate model to each cluster

Attrition rates by cluster

Explanatory Models of Attrition for the Defined Clusters

- Significant variables

Cluster 1	Cluster 2	Cluster 3	Cluster 4
External +	Postgrad –	Full time acad staff –	VET +
EFTSL –	Progress –	VET +	PartTime +
VET +	External +	Age –	Full time acad staff –
Senior Academic –			Senior Academic –
Postgrad –			
Adj Rsquared 86%	Adj Rsquared 33%	Adj Rsquared 57%	Adj Rsquared 58%

Findings

- There are explainers of attrition that are specific to certain segments of the Australian higher education sector
- Some explainers of attrition are affecting the Australian higher education sector across several segments: VET, Senior academic staff, external enrolments, full time academic staff
- Analysis does not reveal any strong link to ATAR values in universities or in other clusters
- No link to low SES, none to mature aged entry, though this does appear as a weak explanatory variable in the model for the whole sector
- OECD latest stats show Australia’s completion rates are at about the OECD average (70%) and behind the UK (83%) and the US (79%)

The future

- Report points a way forward for consideration of attrition by TEQSA
- Good explanatory models for each of the clusters (particularly clusters 1 and 4) which are intuitively reasonable
- An institutional approach to the understanding of attrition is a good way forward for TEQSA and to develop future policy about attrition and its importance to the performance of the sector

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A response to *Characteristics of Australian higher education providers and their relation to first-year attrition*

Professor Pip Pattison

DVC Education, University of Sydney

TEQSA

Outline

1. Why does institution-level analysis add value?
2. What *can't* we conclude from this study?
3. What have we learnt?
4. What next?

Why does institution-level analysis add value?

- Additional analysis, additional evidence
- Many strategies to reduce attrition are set and implemented at institutional level
- The HESP analysis in *Improving retention, completion and success in higher education* shows that institutions are a major source of variation in modelling attrition at student level
- Understanding institutional heterogeneity is therefore important
  - exploratory analysis of heterogeneity illuminates its nature
  - exploratory analysis of attrition rates by institutional cluster identifies both common and distinctive relationships across clusters

What *can't* we conclude from the study?

The study identifies relationships between institutional characteristics and institutional attrition rates, but we need to note that:

- we cannot infer causal relationships between institutional factors and institutional attrition rates
- we cannot conclude that there are corresponding correlations at the individual student level (ecological fallacy)
- the entire population of institutions is included in the analysis
- some important factors are almost certainly missing from the analysis (e.g. per EFTSL expenditure on student services?)
- the analysis is exploratory

What have we learnt?

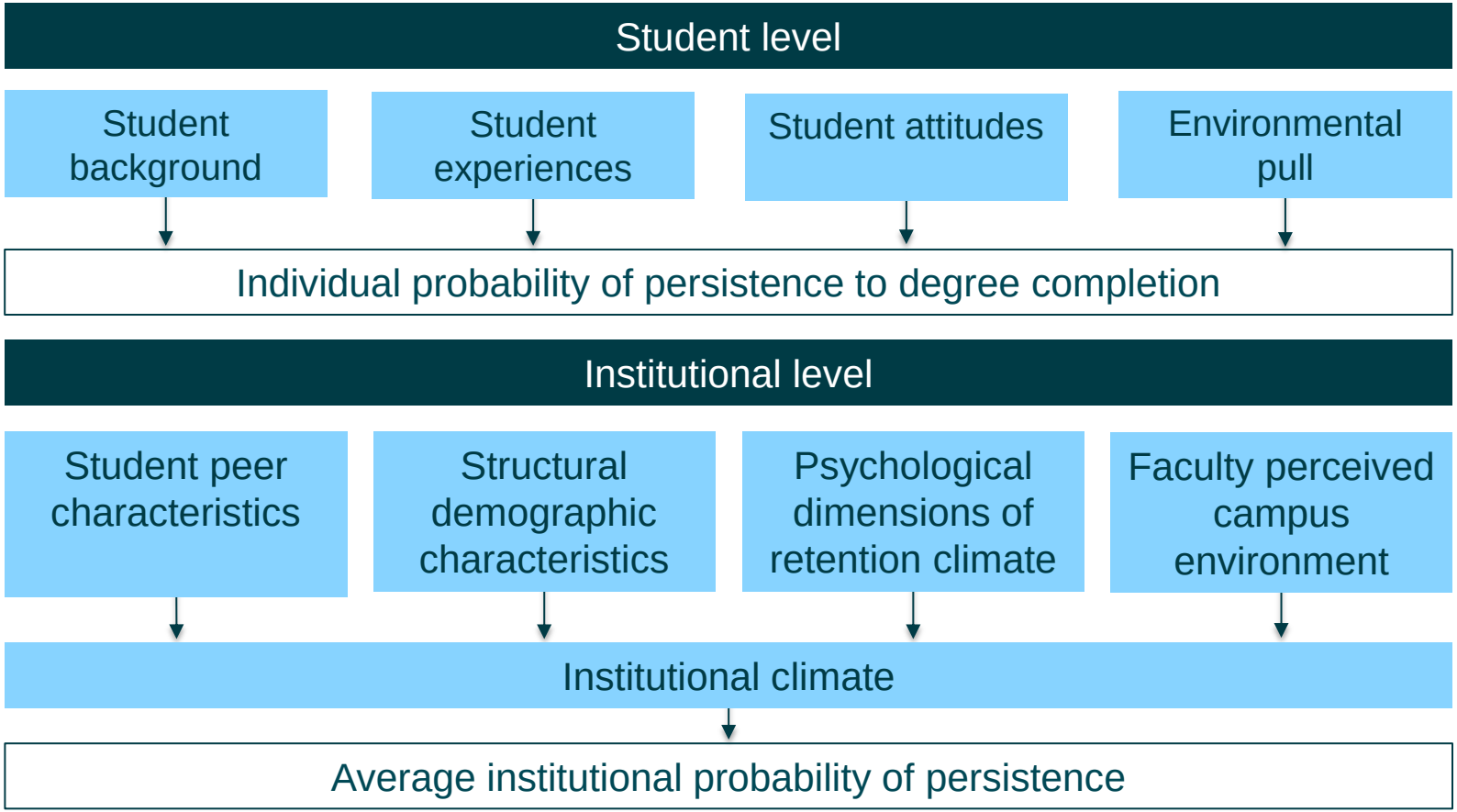
- Higher education provider heterogeneity
- Some relationships are identified as potentially important at institutional level
  - EFTSL, Postgraduate, SeniorAca
  - External, PartTime
  - VET (basis of admission)
- Many relationships are identified as potentially not important at institutional level
  - Median TES
  - SSR, Agreement (CEQ)
  - FTEmployment (GDS)
  - SES
- Important variation of relationships across clusters

What next?

1. Understand attrition in its full multi-level complexity

    - student level *and* institutional level characteristics are likely to matter
    - conceptual models of attrition/degree completion point to multilevel explanations and the importance of longitudinal designs that incorporate time-varying factors
      (e.g. Chen, 2012)

Example 1: A conceptual model for degree completion (Oseguera and Rhee, 2009)



Oseguera and Rhee (2009) findings

Data

- 37,006 students in 170 US four-year colleges and universities
- Cooperative Institutional Research Program freshman survey (1994)
- Six-year degree completion (2000)
- Higher Education Research Institute faculty survey (1998/2001)

Modelling

- Hierarchical generalised linear models for six-year degree completion

Findings

	%variance explained
Student level effects: race, SES, financial concern, high school GPA, SAT, living on campus, intent to transfer	
+ *Student composition effects*: high school GPA, institutional selectivity	58.2%
+ *Structural demographics*	65.1%
+ *Faculty-perceived campus climate environment*	65.3%
+ *Institutional retention climate*	69.1%

What next?

2. Consider the role of *program level* factors and strategies (and explore heterogeneity *within* institutions)

3. Focus efforts on understanding the impact of promising interventions, e.g.

    - analytics-based engagement interventions such as the *Student Relationship Engagement System*

    - ‘values affirmation’ interventions of Cohen, Harackiewicz and others

Thank you

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Coming up next

TEQSA Occasional Forum Series

Academic Integrity and Contract Cheating

Friday 27 October 2017, Sydney

Further details to be advised

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