



The Role of Data in Understanding & Impacting Student Persistence

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Overview

- UBC at a Glance
- SEM and Retention at UBC: the context
- Understanding the Data
- Discussion



UBC at a Glance

1908 the year UBC was established

4-year, public research-intensive, medical/doctoral

2 campuses, Vancouver and Kelowna

1 Board of Governors and

1 President but **2** Senates

54,675 students on two campuses, Vancouver and Okanagan

7,653 international students

11,054 degrees granted in 2009/10

30th in world university rankings, one of three Canadian universities in the top 40



The Vancouver Campus

- Student population of 47,582 HC (40,349 FTE)

37,944 undergraduates, 9,638 graduates

4,488 international undergraduate students

30% live on campus



SEM and Retention

- In 2008, an SEM Working Group on Retention concluded:

“UBC’s retention rates are enviable and, while there are important questions to ask about determinants of retention, setting a simple goal of raising retention by x% would be misguided.”



Why focus on retention?

Significant pressure on institutions to retain students who have already been recruited

- Support student success: high achieving students who we want to succeed
- Institutional Reputation
- Cost effective – recruitment of students has been highly competitive (especially international students who are a source of much needed funding for institutions); easier to try and keep students you already have than to recruit new students

Effective and sustainable enrolment management practices are based on student success and are measures of institutional effectiveness



A second SEM Working Group on retention was convened in 2009.

They were asked to

“look again at the issue of retention, this time with specific reference to the idea of ‘building a class’ (increasing both out-of-province and international enrolment to a combined 35% to 40% of the total undergraduate population) and whether UBC’s retention rates might change as a result.”



That group discovered that:

- UBC exhibits high retention rates expected for “highly selective institutions” but the retention rates are different for different populations
- 90% retention rate for domestic students
- 80% retention rate for international students
- 77% of students graduate within 6 years

The group also noted that NSSE and other data suggest that UBC might have a different kind of student problem. . . “academic indifference” or “academic stagnation”



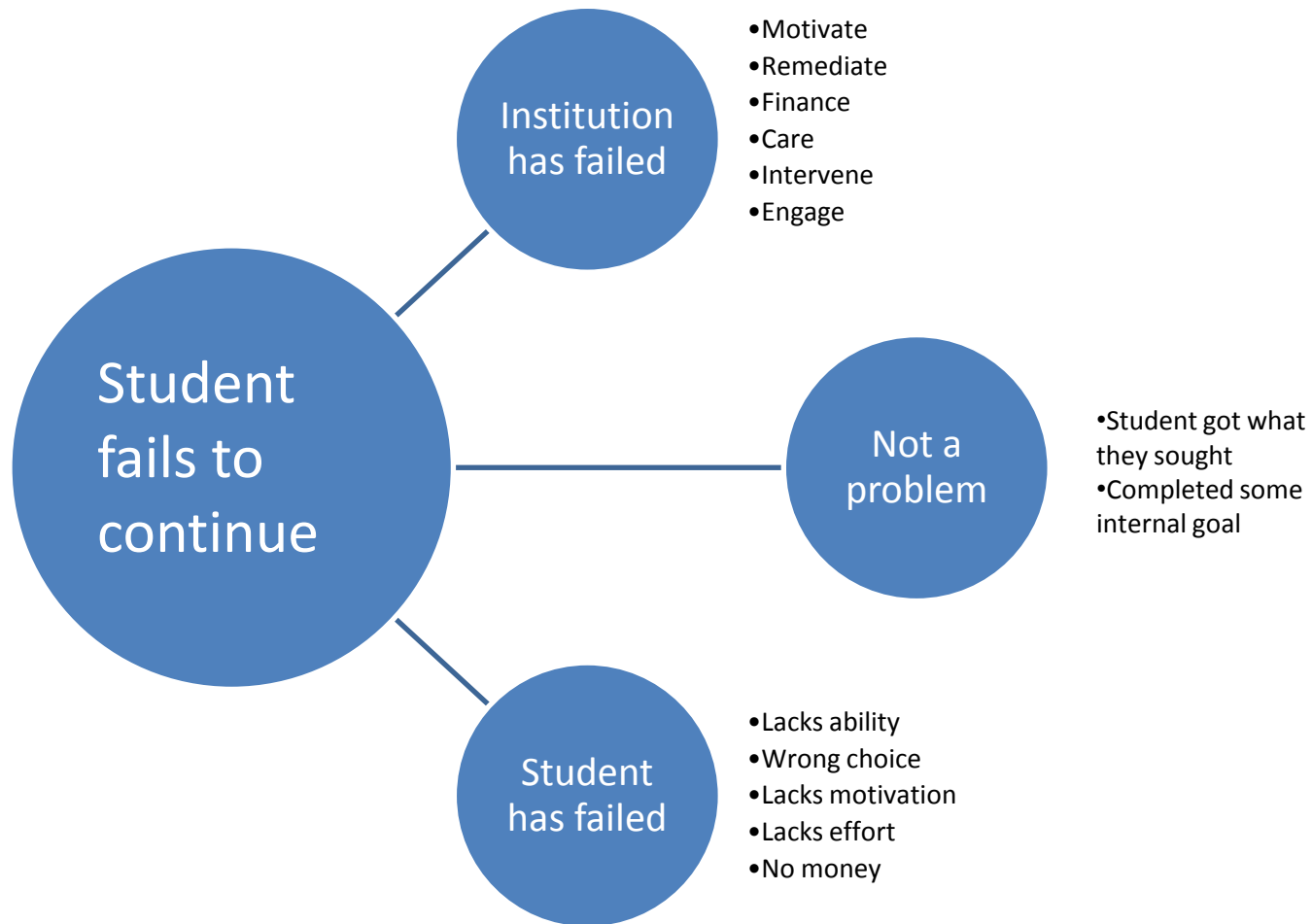
Students who are academically indifferent or academically stagnant. . .

- complete their studies largely because of personal goal directness, but with little sense of satisfaction and at great personal cost
- do not exhibit the levels of engagement characteristic of students at peer institutions
- exhibit high levels of stress leading to academic difficulty or less than optimal performance
- result in low net promoter scores from alumni

This led us to look at retention in some different ways

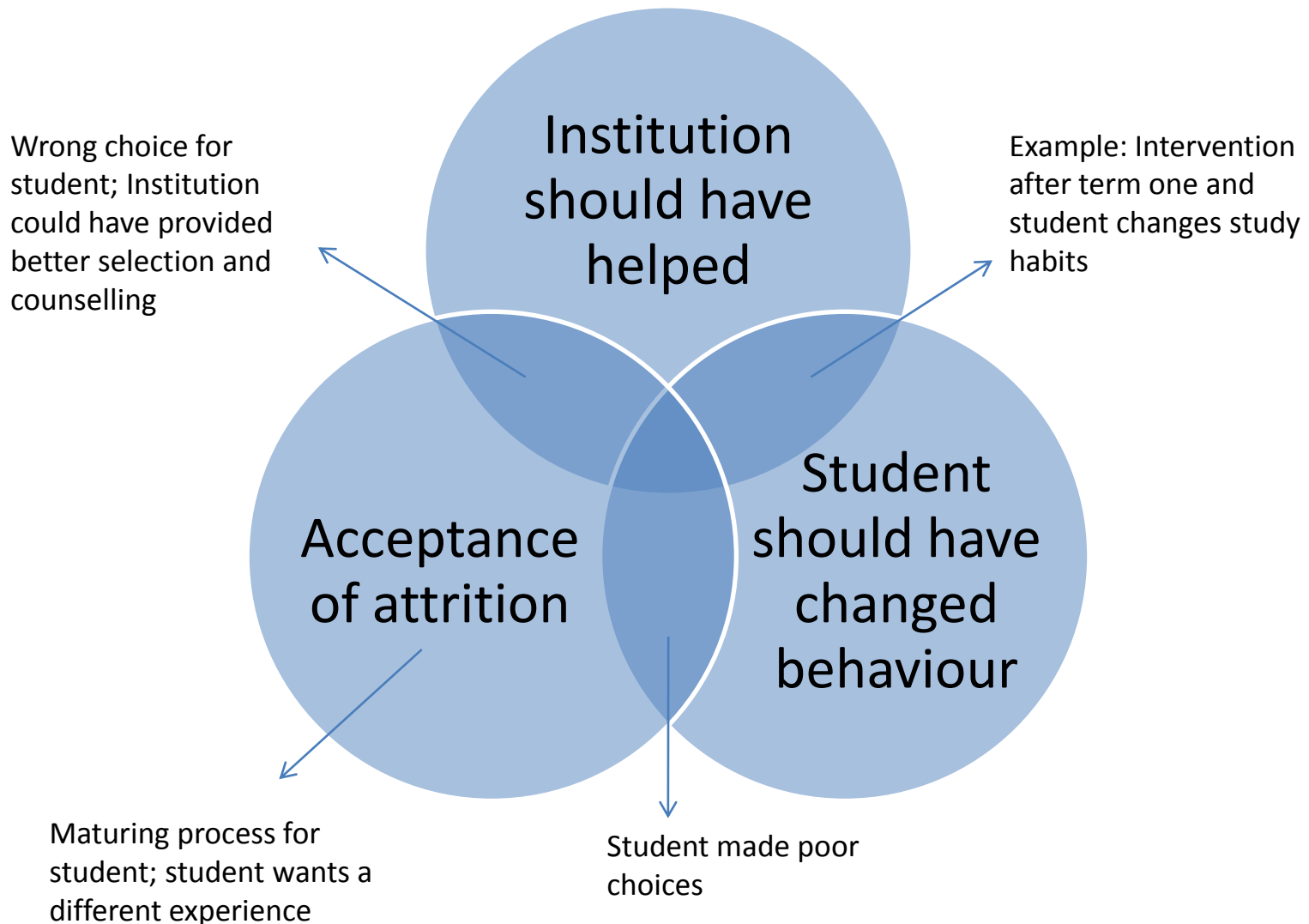


Framework for attrition: two extremes





Attrition is a shared problem





Groups of low and high attrition at any university

High
Attrition

Traditional
problem: why?

Data mining

Low
Attrition

Can still tell us
something about
the student
experience

Comparative
data analysis

Don't make the assumption that we only need to look at attrition for the 'high' group; students in the 'low' group have similar experiences and in fact, some of them are also leaving



Results

- Retention rates are high at UBC-Vancouver 2009 to 2010: 90% retention for domestic students (4334 students); 80% for International (772 students)

| UBC-V: Retention rates (first year, first time, full-time) | | | |
|---|----------|---------------|---------|
| | Domestic | International | Overall |
| Arts | 89% | 84% | 88% |
| Business | 92% | 77% | 88% |
| Engineering | 86% | 76% | 85% |
| Science | 93% | 82% | 92% |
| All (includes Forestry and Land and Food systems) | 90% | 80% | 88% |

This is purely data mining ...



- Results are simply descriptive
- They don't tell us what to do or what works...



More data mining with the high attrition group

Both the international and domestic groups have students who were retained and not retained. We don't want to focus only on the not-retained group and discover what we already knew (i.e., that it contains more international students); instead look at the two groups separately



Retention Model

→ Evidence based approach

Inputs include multiple characteristics and the interdependence of these:

Administrative Data

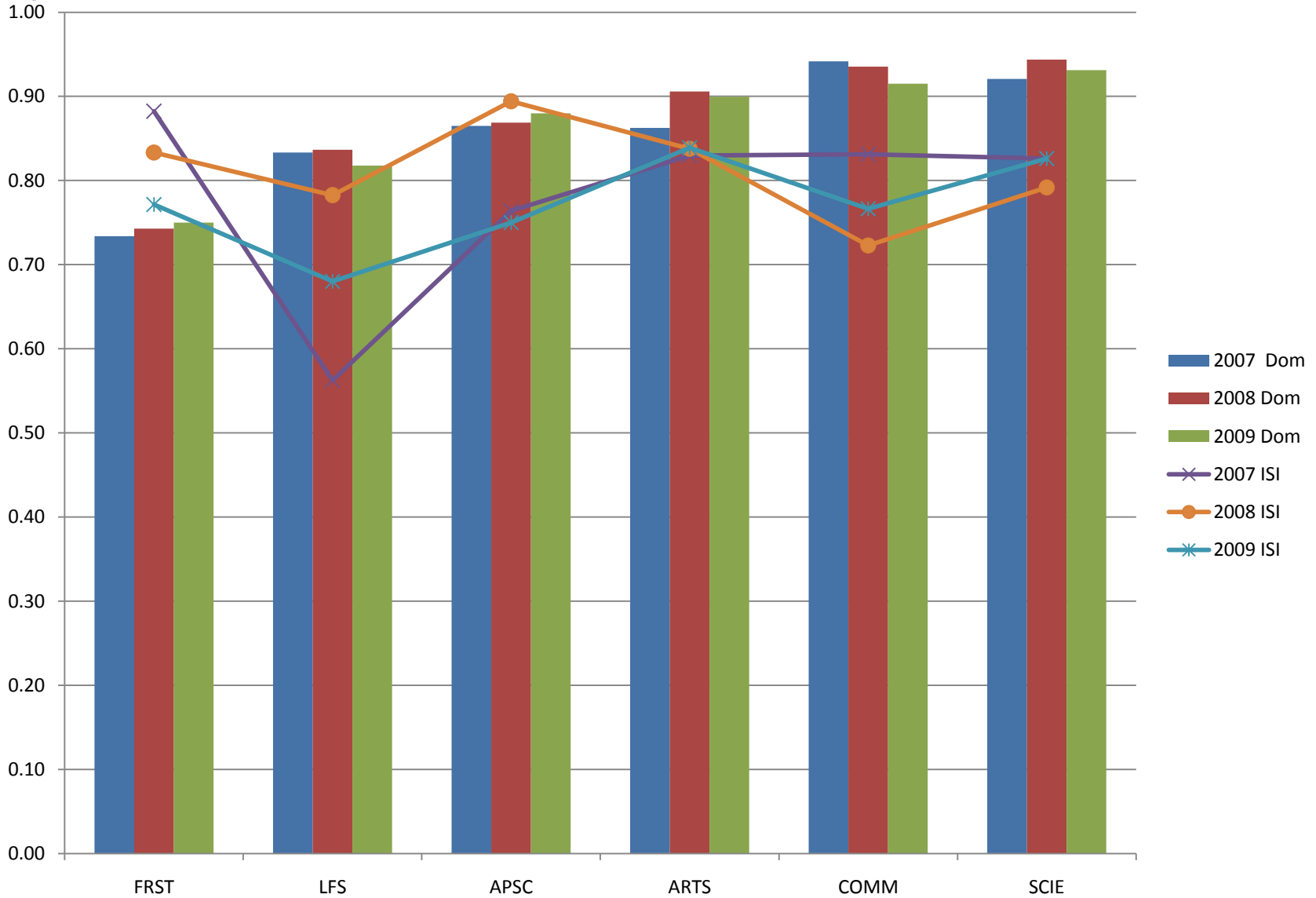
- Faculty, degree program, year level
- Admissions information: admission average, basis of admission, type of sending institution, region, province, country, program choice, type of curriculum (IB, etc)
- Additional student information: gender, citizenship, aboriginal, first language
- Performance: GPA, credits earned, academic standing
- Scholarships

Student surveys

Participation in orientation type programs (Jumpstart for international students which provides a two-week intensive academic preparation for university life)

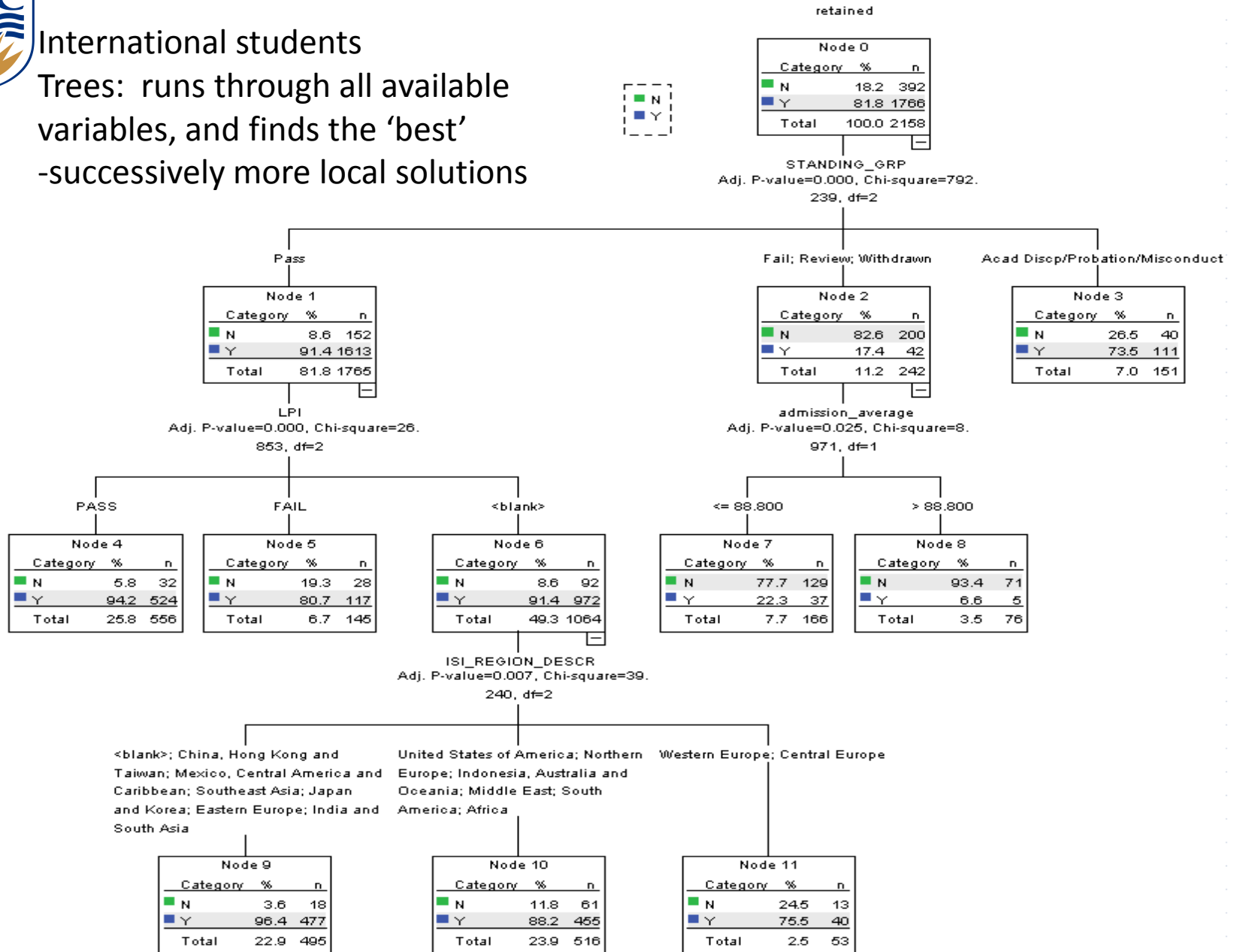


UBCV: First year Retention rates: over time, by program, ISI/Dom





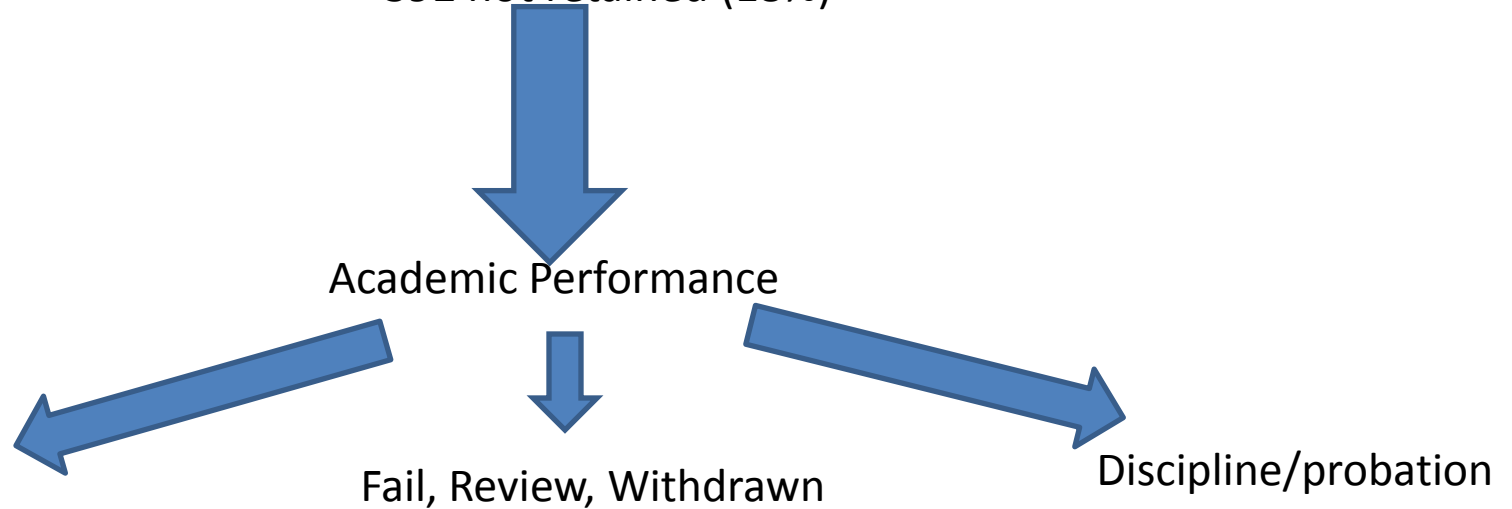
International students
 Trees: runs through all available variables, and finds the 'best' -successively more local solutions





International students: 2,158 Students

- 1,766 retained (82%)
- 392 not retained (18%)



Pass

| | |
|------------------|-------|
| 1,613 Retained | (91%) |
| 152 Not Retained | (9%) |

Fail, Review, Withdrawn

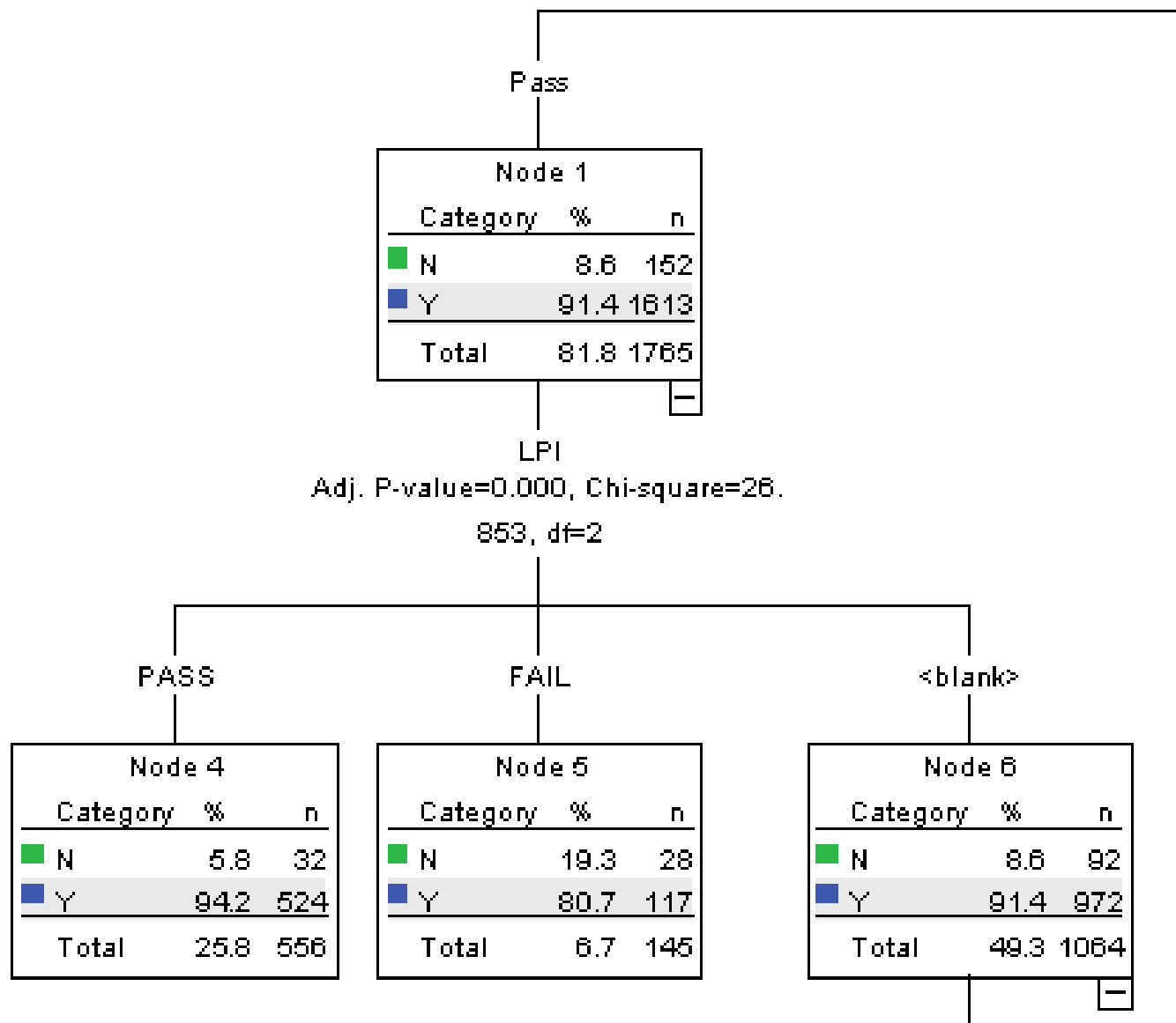
| | |
|------------------|-------|
| 42 Retained | (17%) |
| 200 Not Retained | (83%) |

Discipline/probation

| | |
|-----------------|-------|
| 111 Retained | (74%) |
| 40 Not retained | (27%) |

Even though retention is very high, we might learn more from these branches

These nodes don't have interesting branches (we'll explain failure using a different tree)





Now, LPI (Language Proficiency Index) is relevant:

Pass the LPI → 94% retention

Fail the LPI → 81% retention

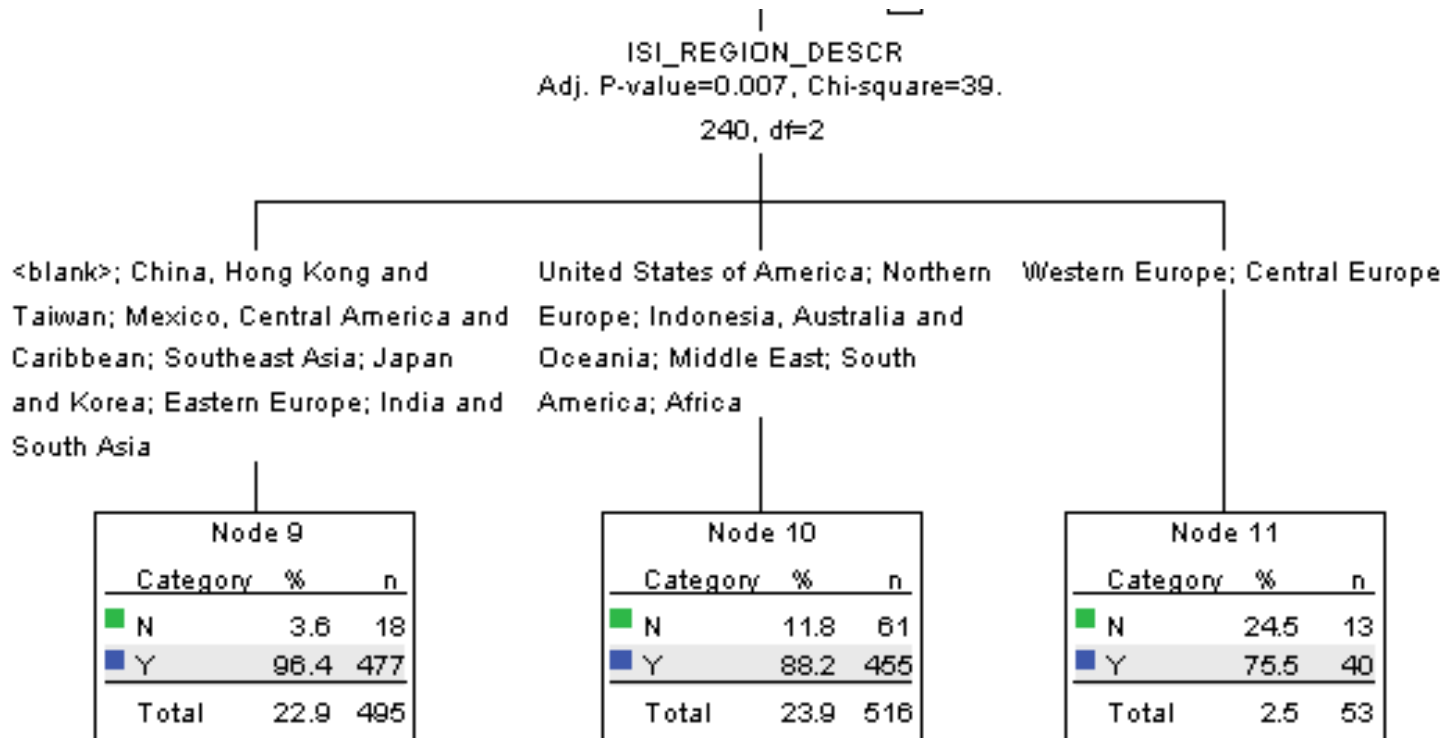
No LPI → 91% retention

But, of those who PASS the session, but FAIL the LPI, only 28 are not retained

- Clear *effect* of LPI on retention, but small *impact in actual numbers*



Further down the tree:
What effects retention for those who: a) pass the year;
b) do not require the LPI

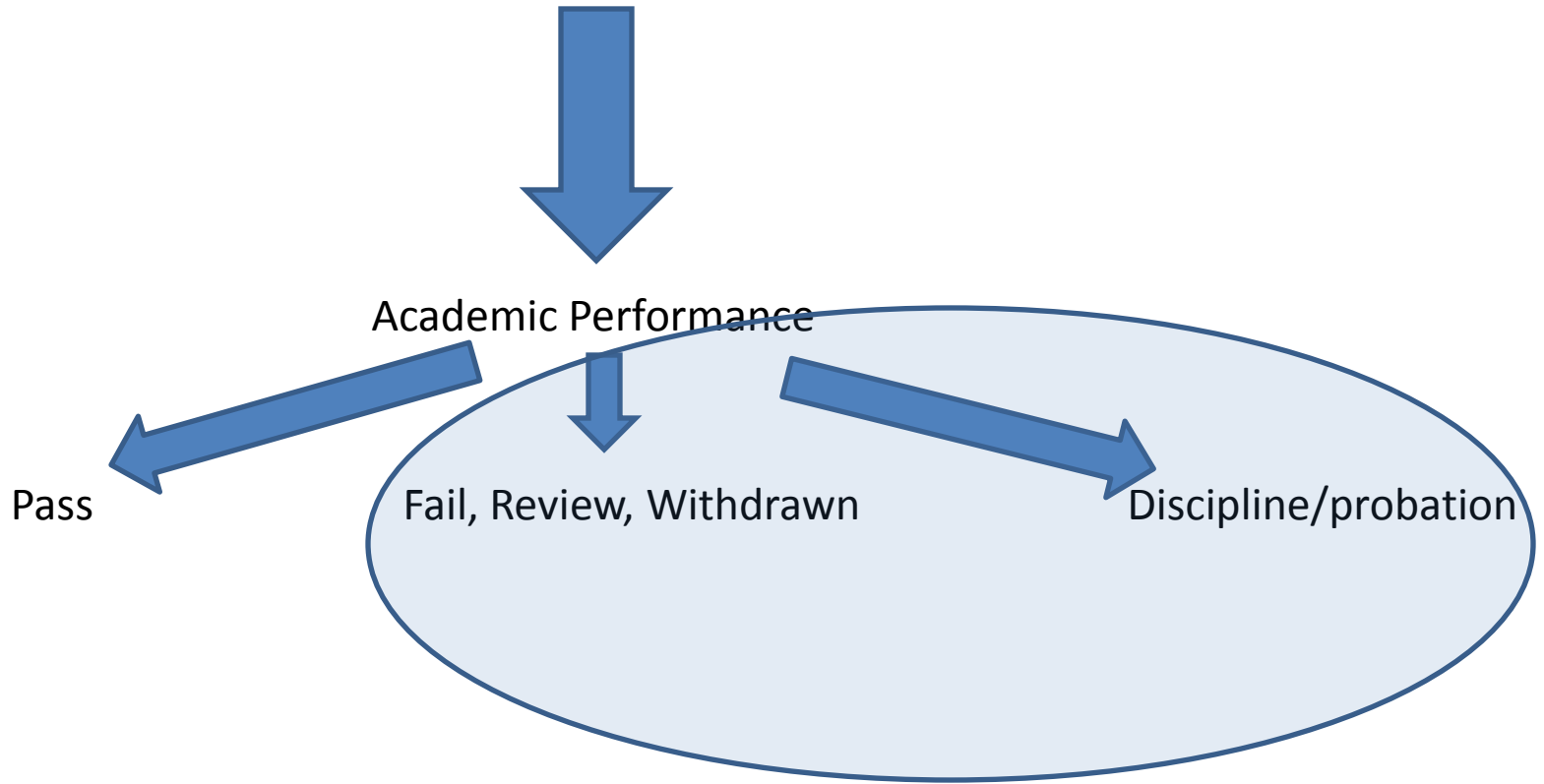


We have a high *percentage* attrition from U.S.A and Western Europe
But, numbers are small: 74 students
→ *controlling for PASS rate, attrition of Americans is not that serious*



2,158 Students

- 1,766 retained (82%)
- 392 not retained (18%)

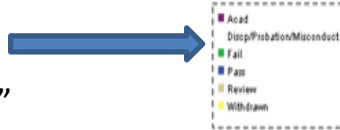


What explains the other nodes?



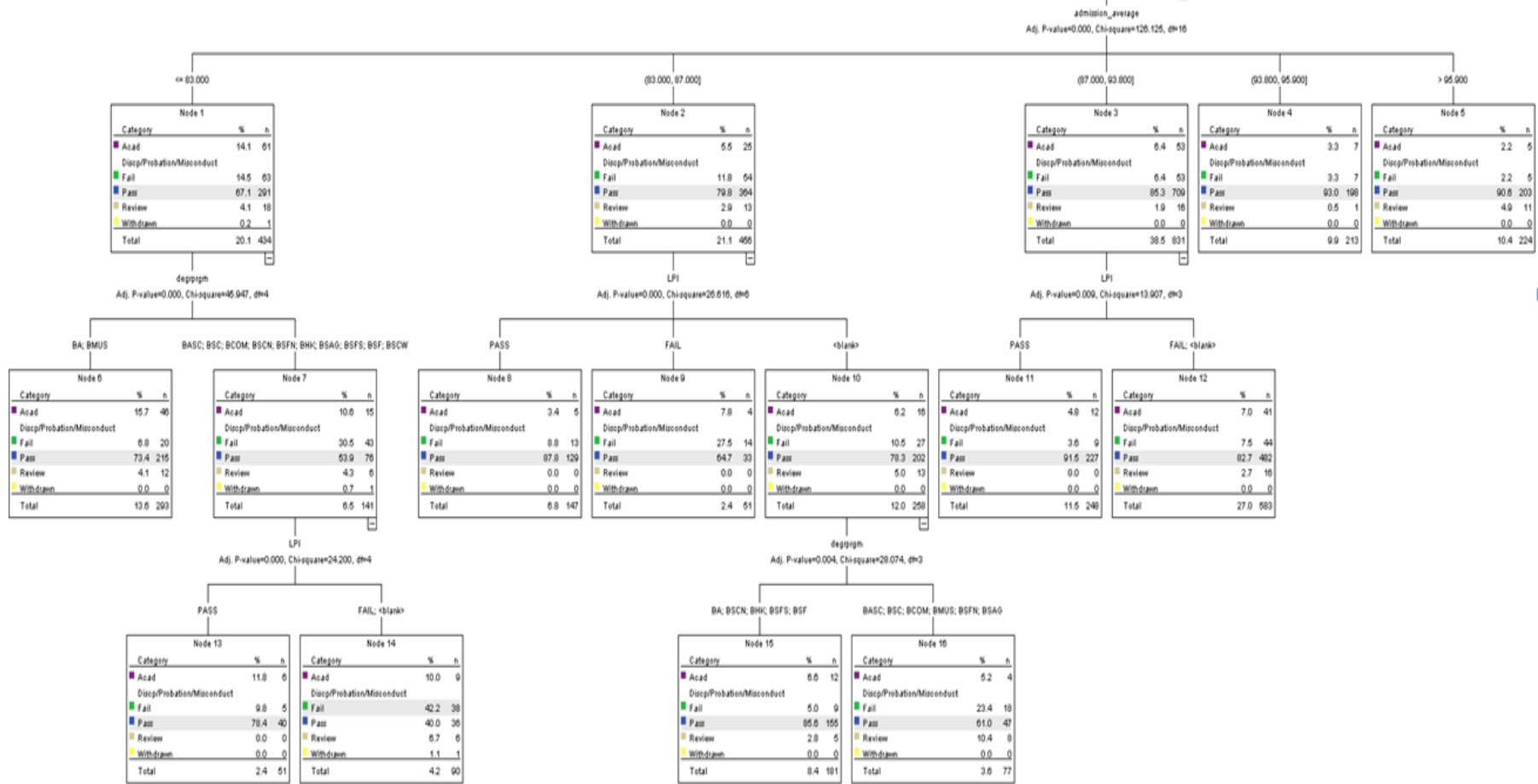
A new tree with root: Academic Standing

Now we're explaining "academic standing"



STANDING_GRP

| Category | % | n |
|----------------------------|-------|------|
| Acad | 7.0 | 151 |
| Discp/Probation/Misconduct | 8.4 | 182 |
| Fail | 81.8 | 1765 |
| Pass | 2.7 | 59 |
| Review | 0.0 | 1 |
| Withdwn | 100.0 | 2158 |





Best Predictor of ACADEMIC STANDING is ADMISSION AVERAGE

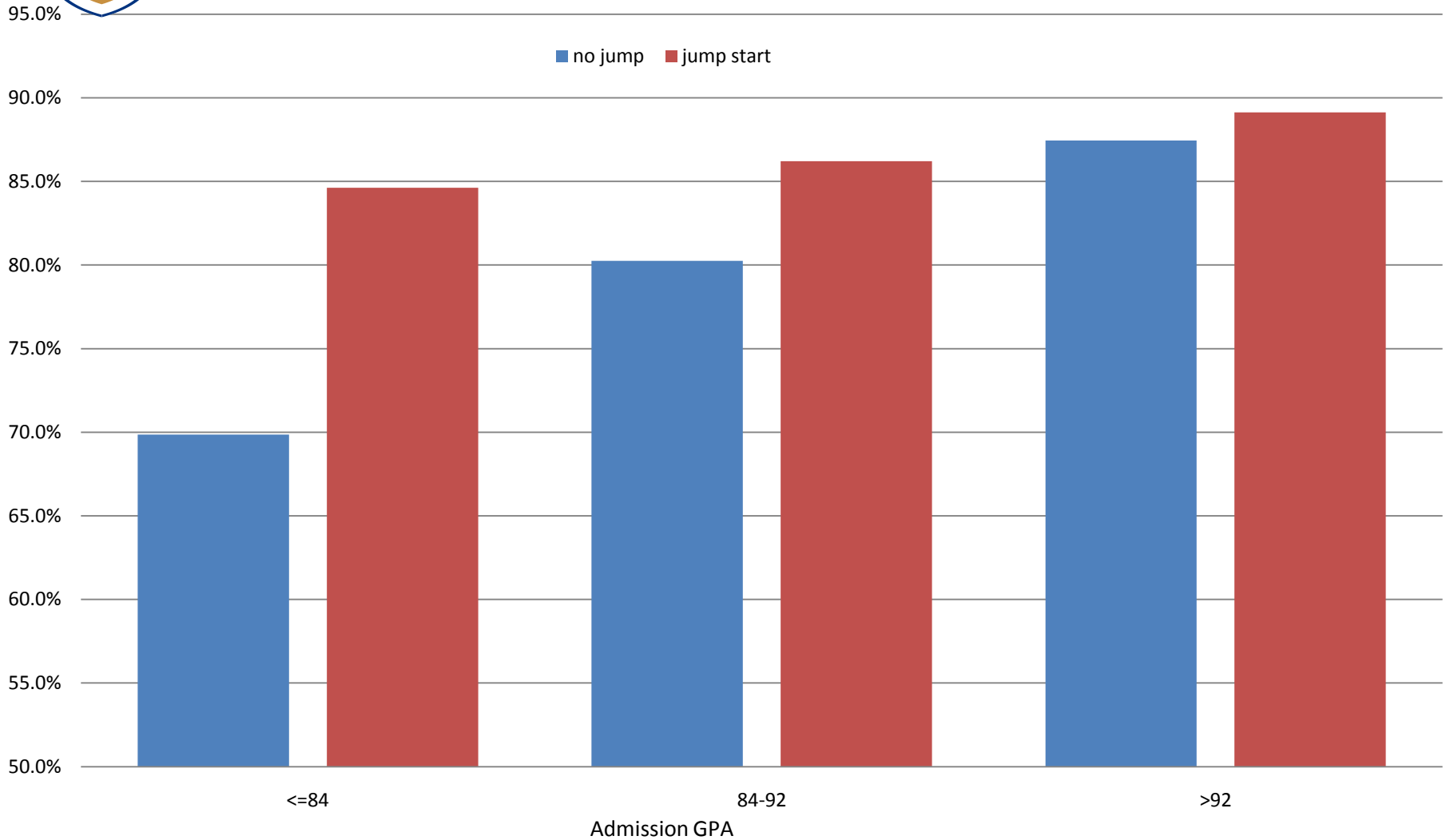
Admission ranges which give the most variance in Pass rate

| Admission range | <=83 | 83 - 87 | 87 - 94 | 94 - 96 | >96 | Total |
|---------------------------|----------------|----------------|----------------|----------------|---------------|--------------|
| Pass rate | 67% | 80% | 85% | 93% | 91% | |
| Number in range | 434 | 456 | 831 | 213 | 224 | 2158 |
| likely to drop out | 143 | 91 | 125 | 15 | 20 | 394 |

Roughly, we would like our attrition rate for international students reduced by 50%...implies a gpa cut-off of somewhere between 83 and 85



Effect of Jumpstart program on retention Proportion retained versus admission GPA





Domestic students

- Recall: high retention rates (90%)

We can do a similar tree analysis and would find that 5% of the students who passed did not continue

Another alternative is to look at the student experience (if 90% retention is good, what about the student experience would help explain why students are not continuing)



One Approach:

Compare survey results with other institutions
(reasons for not returning to institution)

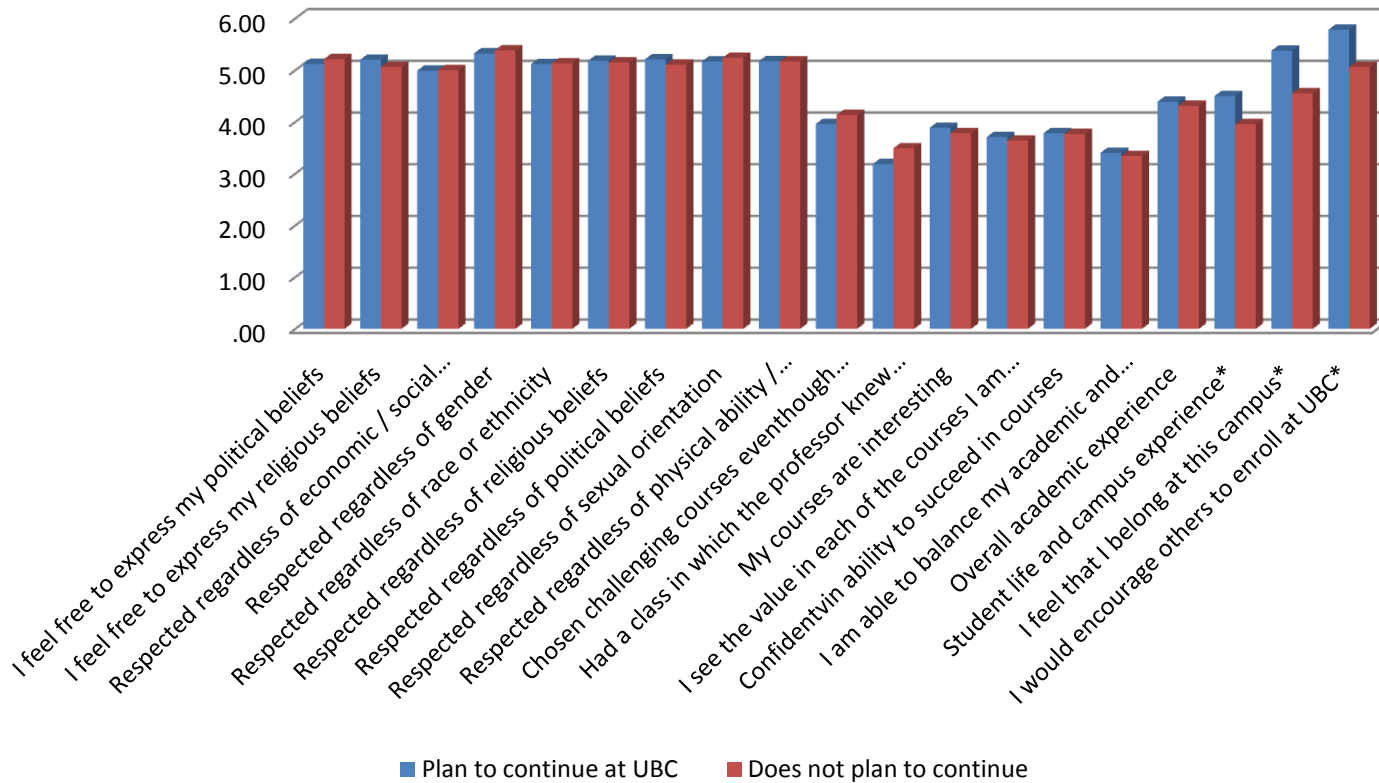
Don't have good comparable datasets with
representative sample...working on new
collaborations in the upcoming cycle



UES (Undergraduate Experience Survey)

- Do you plan to continue your studies at UBC next year?

UES Survey: Domestic First Year



*Results are statistically significant



More data mining...

Up to now, all we've done is look at what's happened in the past and present

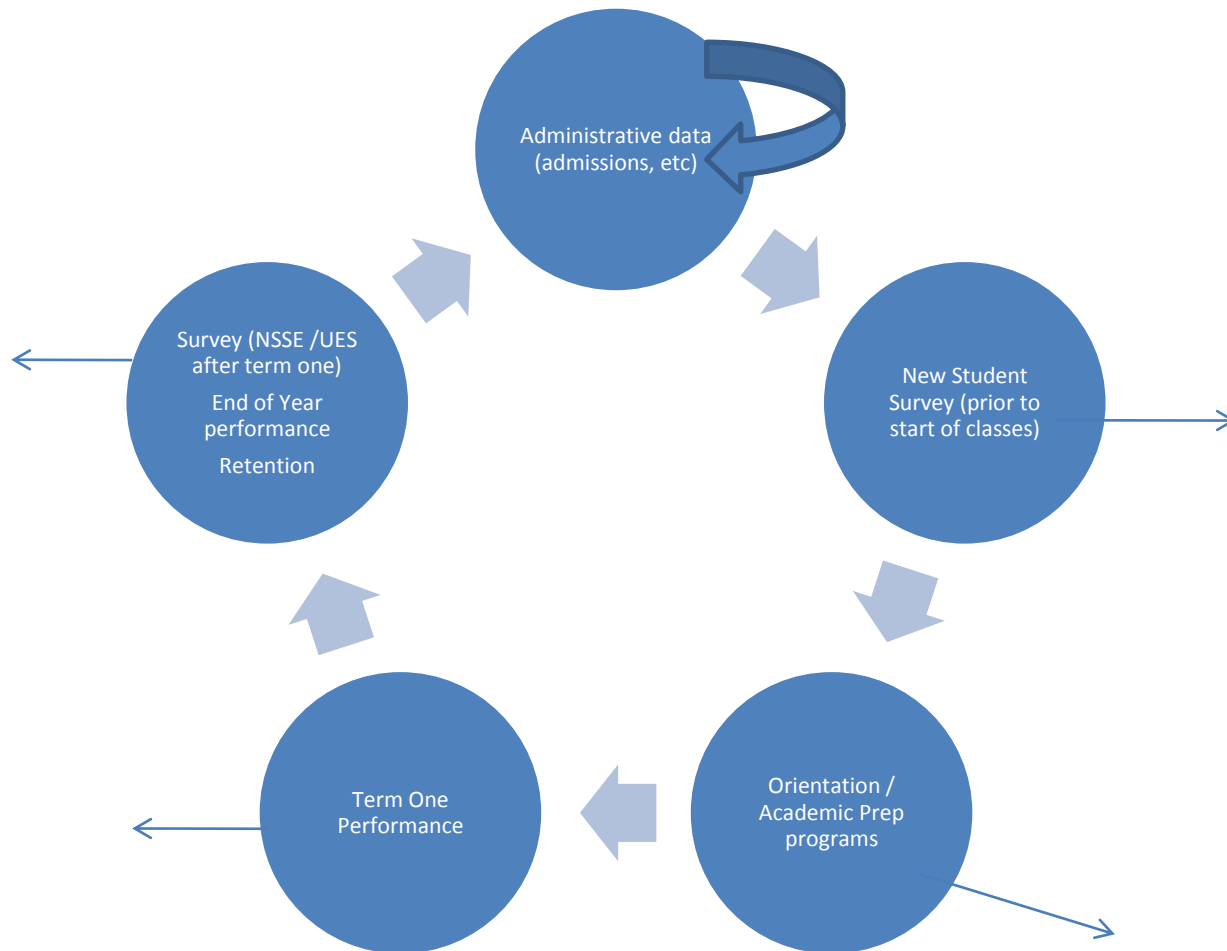
Developed interventions based on various inputs

Predictive modeling:

- Use data from the past / present to identify students who may need interventions
- New to UBC Survey – administered in August

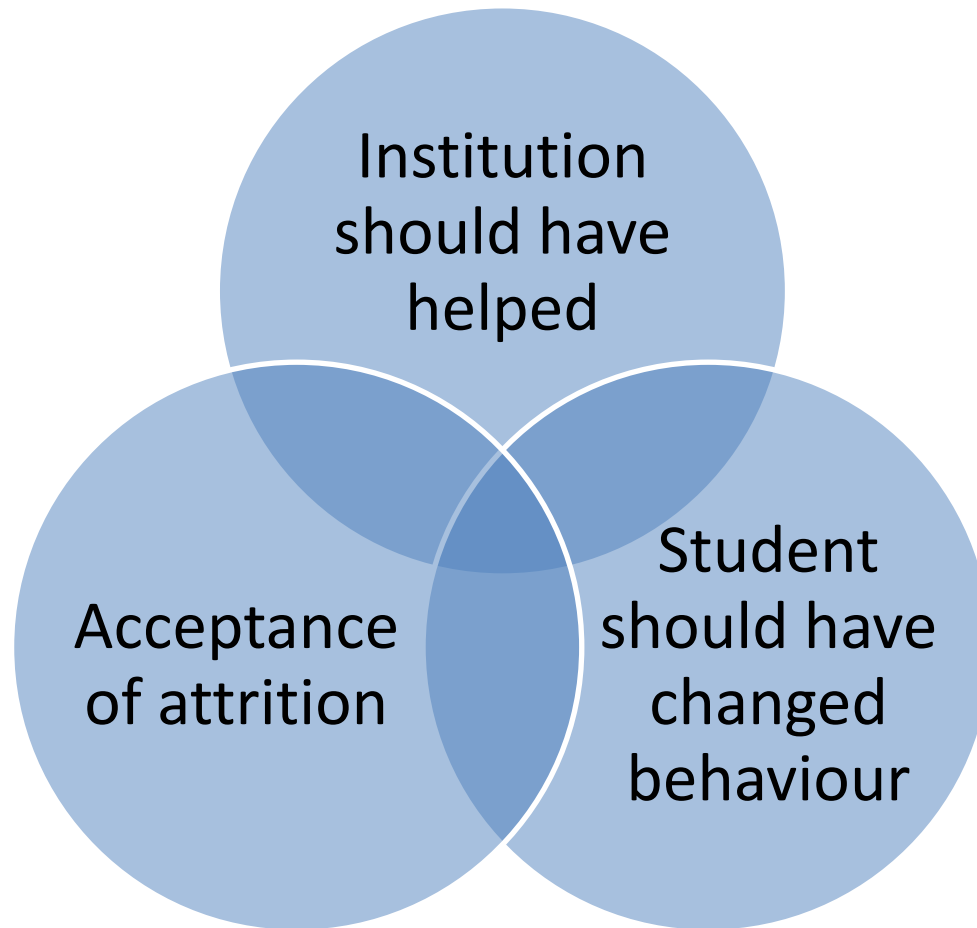


Predictive Modeling & Analytics





Discussion



Where do they fit and how can data impact persistence?



Reflection

As institutions become intentional about recruiting students from other parts of the country/world, understanding retention and attrition becomes even more important.

Consider your own institutional enrolment management goals. How are those goals affected by the retention rates of different student populations? How might your institution respond?



Reflection

How committed are your institutions to helping students succeed? That is, if we knowingly admit students who have a lower possibility of being successful, how far are we willing to go (i.e. what kinds and how much student support will you provide?) to ensure student success?