Using Student Feedback in Analytics Frameworks to Improve Teaching and Learning: The Dalhousie Journey

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DALHOUSIE UNIVERSITY 1818 2018

@bwuetherick

Kwe (Mi'kmaq)

Tansi (Cree)

Aya (Myaamia)

I would like to begin by acknowledging that the land on which we gather here in Illinois is the ancestral lands of the Peoria, Kaskaskia, Piankashaw, Wea, Miami, Mascoutin, Odawa, Sauk, Mesquaki, Kickapoo, Potawatomi, Ojibwe, and Chickasaw Nations. *(from the Universitv of Illinois System)*

Dalhousie University

Halifax, NS, Canada

Medical-Doctoral Research (member of U15)

19,000+ students (~15,000 undergrad)

~1100 faculty + ~300 part-time academics

13 faculties -- 180+ degree programs

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Dalhousie University

Student Evaluations on campus (average term)

Courses evaluated:
2300 course-instructor combinations

Invited:
~70,000 forms

Responses:
~30,000 completed

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When we create a culture of feedback, they send a strong signal to students that they care about their point of view, while also creating opportunities to model how to productively receive and respond to feedback.

So what is the role of analytics in this process?

1. Creating an Analytics Framework for your Campus:

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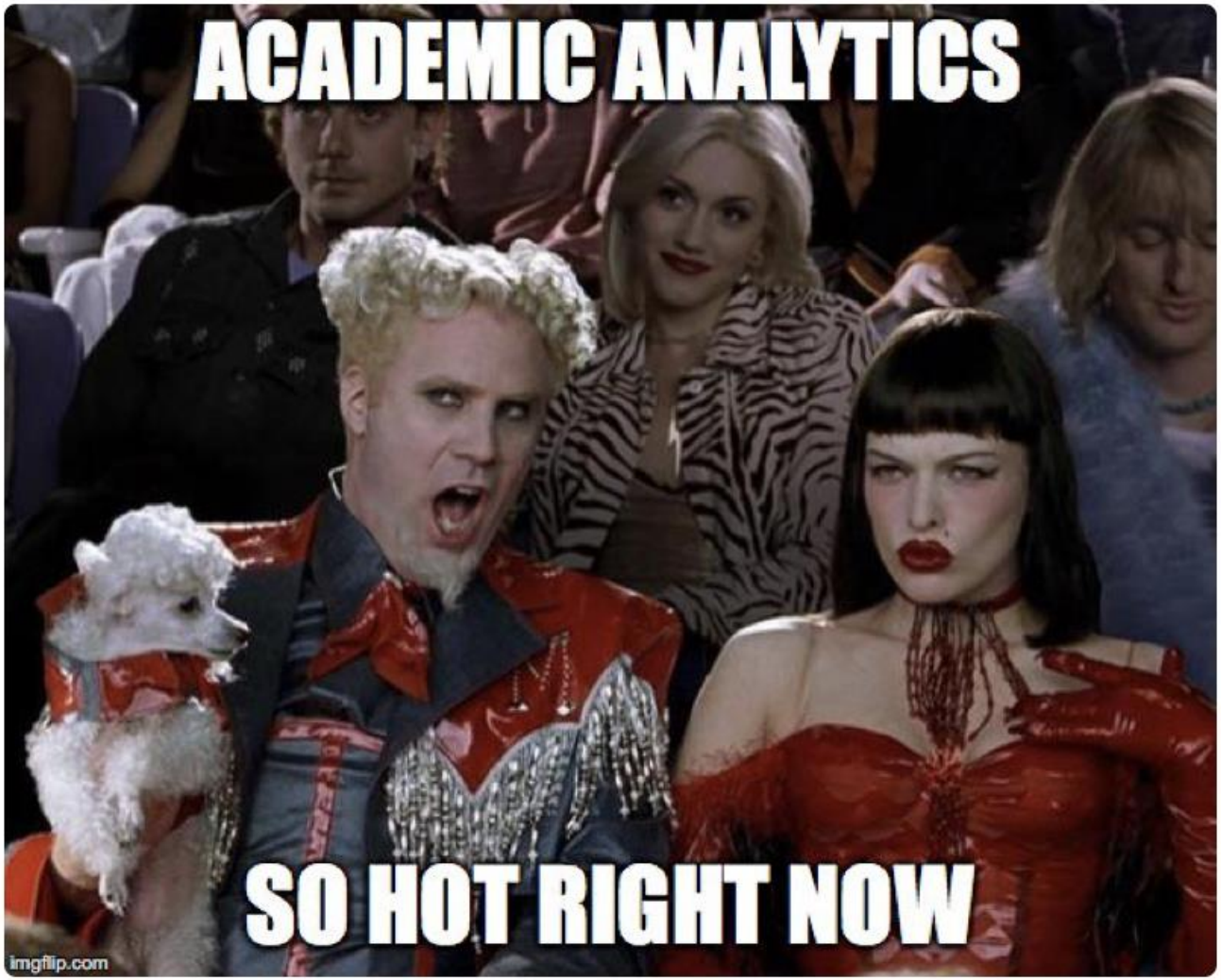
ACADEMIC ANALYTICS
SO HOT RIGHT NOW
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Academic Analytics
(as an aspect of Learning Analytics)

A plethora of data about learners

\+ Tools to analyse, cluster, model and predict

Deeper personalized information about learners

How are Academic Analytics being used?

- Improve administrative data for strategic enrolment management
- Provide personalized support, inform holistic advising and early alerts initiatives
- Improve quality of communication between learners, teachers, and advisors.
- Guide and inform course and program design
- Improve quality and accuracy of student assessment & program evaluation

Why Academic Analytics?

- Increased focus on retention and student success (Campbell, DeBlois, and Oblinger, 2007).
    - **what motivates institutions?**

- Focus on desire for understanding, developing and sustaining a high quality education to help students towards their individual goals and ambitions
- Focus on practical realities that retention and student success impacts - rankings, reputation, recruitment, and revenues

Ethics and the Privacy of Data

- Knowledge of student risk factors can result in bias (even if unintentional) from advisors, instructors, etc.
- Profiling can be discriminatory and prejudicial
- Students have a right to keep personal information private – and a right to be given appropriate notice about the use of their data for institutional purposes
- BUT … Institutions have an ethical responsibility to act in the best interest of students based on the data they gather

Academic Analytics

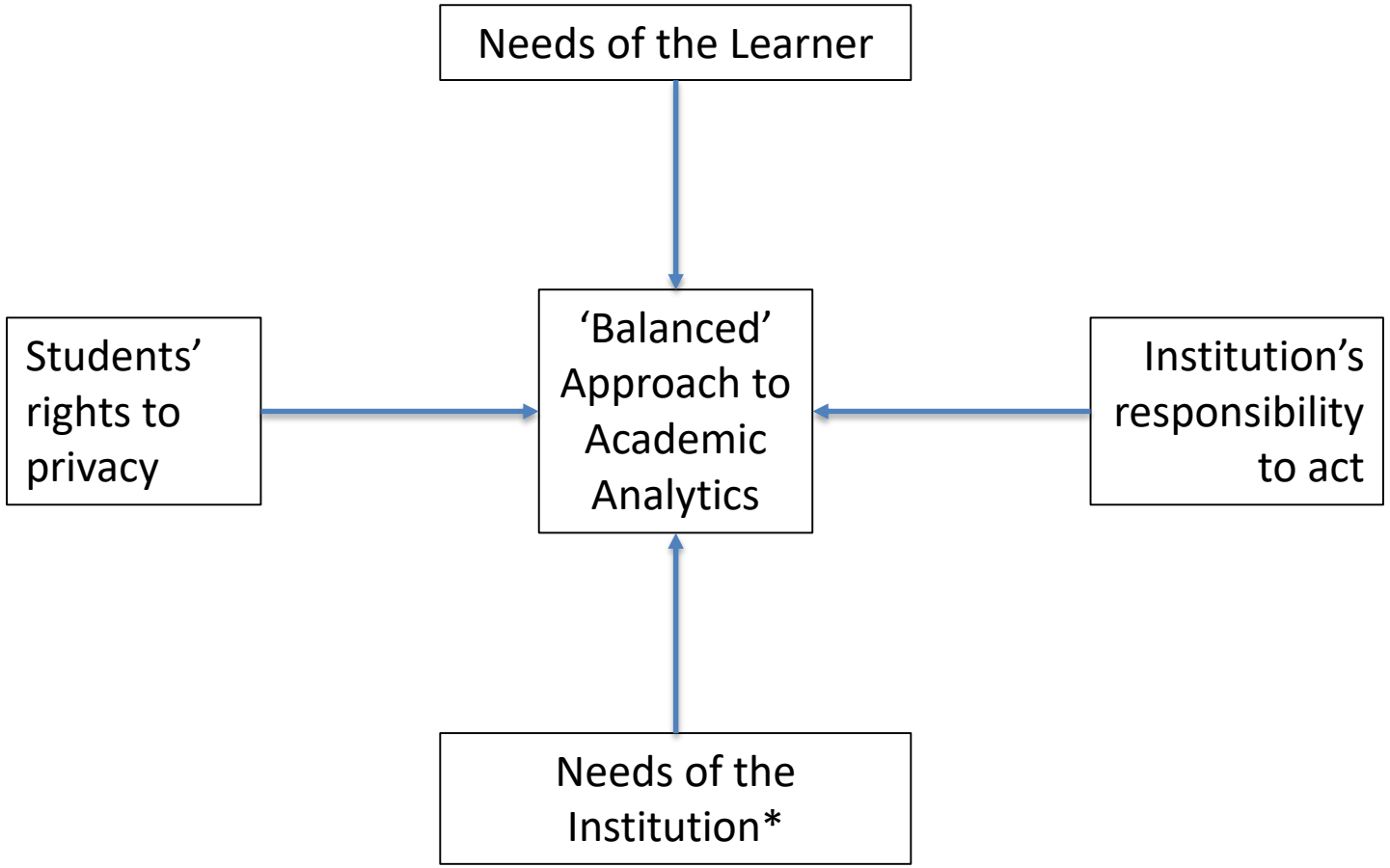
- Understanding the data about our students and faculty is only useful if we use that information to make better decisions about how we design learning experiences, support students, and support faculty/instructors/academic leaders

- Who should have access to the data?
- Under what conditions?

Faculty Perceptions of Academic Analytics

- several studies report faculty skepticism and uncertainty about using such data to inform changes to teaching, learning, and curriculum practices (Andrade, 2011; Dykoff, 2011; Parry, 2012)
    - Uncertain about the motivation behind the initiative
    - Concerns about ethics and privacy
    - Data literacy
    - Complex to understand, and requires changes in faculty behaviour

Ethics and Academic Analytics



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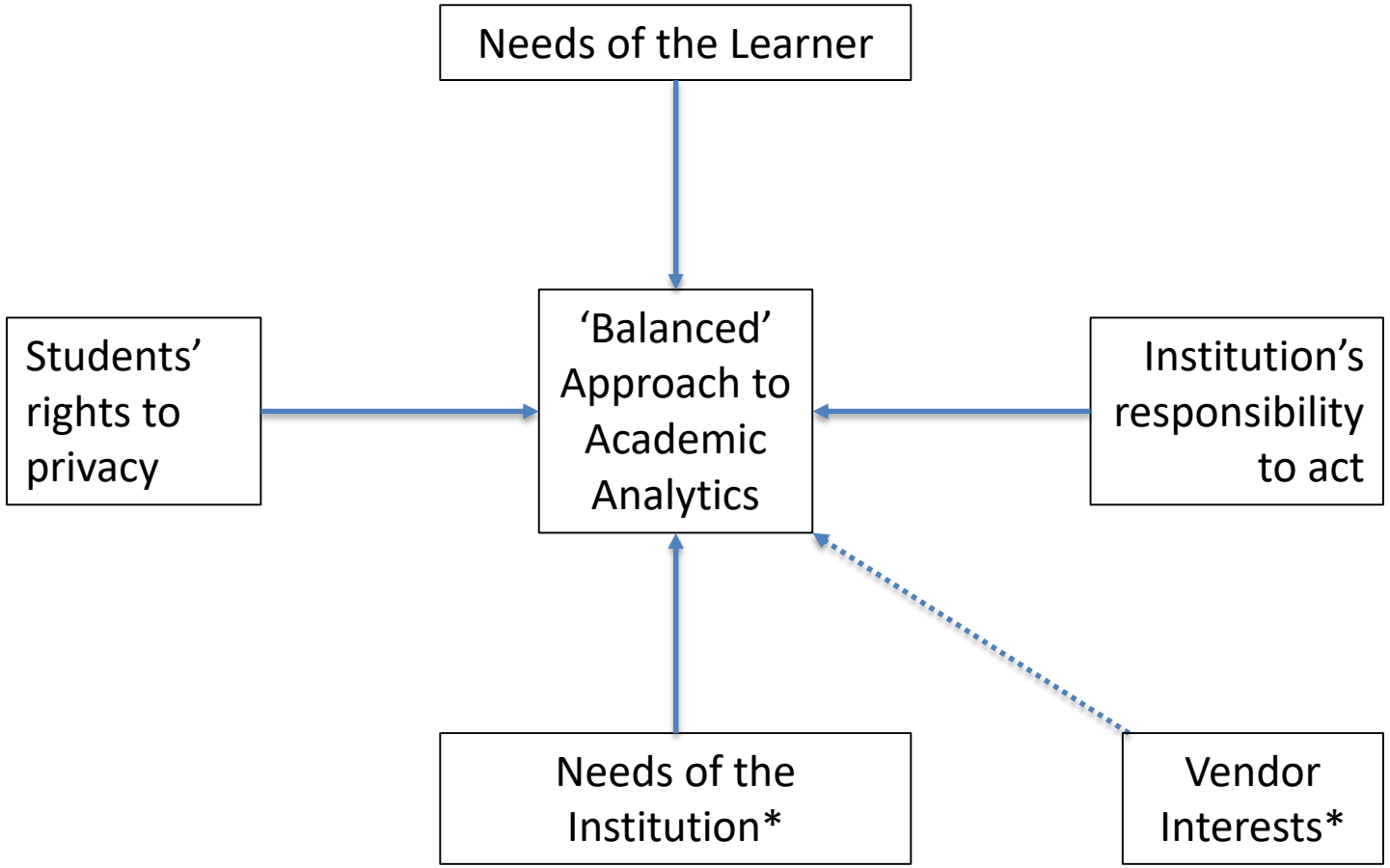
Ethics and Academic Analytics



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Academic Analytics – Required Steps

DATA ACCESS	THE POLICY FRAMEWORK AROUND ETHICAL ACCESS AND USE OF ANALYTICS DATA
DATA VERIFICATION	ENSURING APPROPRIATE DATA STANDARDS ARE IN PLACE ACROSS INSTITUTIONAL DATA SETS
DATA INTEGRATION	BRINGING TOGETHER DISPARATE INSTITUTIONAL DATA INTO COMMON DATA SET
DATA ANALYSIS	ANALYZING DATA APPROPRIATELY AND EFFECTIVELY (INCL. PREDICTIVE MODEL)
DATA SUPPORT	PROVIDING THE RIGHT SUPPORT FRAMEWORK FOR THE EFFECTIVE USE OF DATA

2. Using Analytics with Student Feedback to Improve Teaching and Learning

Understanding Your Data – What Matters:

Internal consistency in the questionnaire? (looking at the likelihood of impacting the overall question)

1. Stimulated Learning – 3.61x
2. Organization – 2.05x
3. Communication – 3.06x
4. Enthusiasm – not a significant predictor
5. Fairness – 3.21x
6. Feedback – 2.09x
7. Concern for Student –1.69x
8. Overall

Understanding Your Data – What Matters:

1. Instructor Demographics – Rank (Assistant Prof – probationary tenure track), Age (below 30 and above 50), Education level
2. Course Characteristics – Winter/Summer; Grad vs Undergrad; class size
3. Student Demographics - International Students; Gender; Discipline (almost all high compared to Arts and Science)
4. Student Grades – C+ or above (high) vs C and below (low)
5. Term/Cumulative GPA (higher GPA rates lower – ie. more discerning)
6. Students' previous ratings – 3 or lower (low) vs 3.5 or higher (high)*
    - ❖ **Note: Neither gender of instructor, nor whether an instructor was racialized is significant in this model**

Understanding Retention at Dalhousie

Remembering that the vast majority of Dalhousie's students are successful, we explored:

- **Retention patterns:** Who is leaving?
- **Retention Analysis:** Who is at the highest risk of leaving?
- **Retention Analysis:** Why do students leave? What are the common characteristics of students who leave?
- **Predictive Modelling:** What have we learned to help us support potentially 'at-risk' incoming students?

Student Evaluations and Retention:

- Part of a larger academic analytics initiative to support our understanding of student retention

- Added four variables to our retention model
  1. Low SRI Course (below 3.5) – (1.3x more likely to leave)
  2. Net Promoter – (3x more likely to stay)
  3. Net Demoter – (1.7x more likely to leave)
  4. Students who don't fill out SRI - (3x more likely to stay)

Student Evaluations and Retention:

- Changed our overall retention model
  1. Risky courses (DFW) – Protective** (1.8x less)
  2. Residence – Protective (~10x less)
  3. Nonlocal – Risky** (3.4x more)
  4. Rural – Risky (1.3x more)
  5. Region (Province) -- Risky/Protective**
  6. Loan – Risky (1.3x more)
  7. Accept-Reject – Risky** (1.5x more)
  8. Low Fall GPA (below 2.0) – Risky (2.9x more)
  9. Low Fall GPA (below 1.0) – Risky (>10x more)

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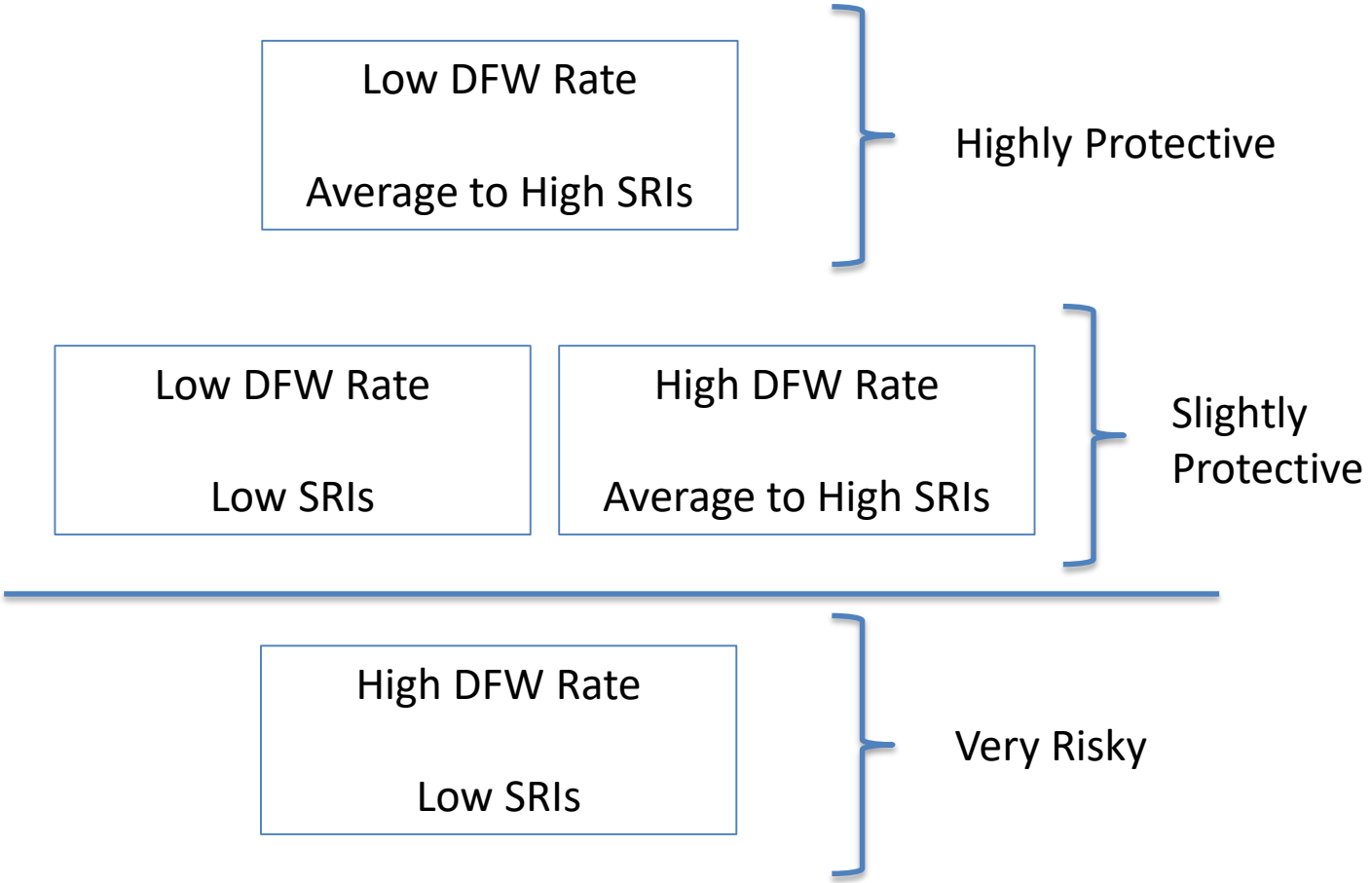

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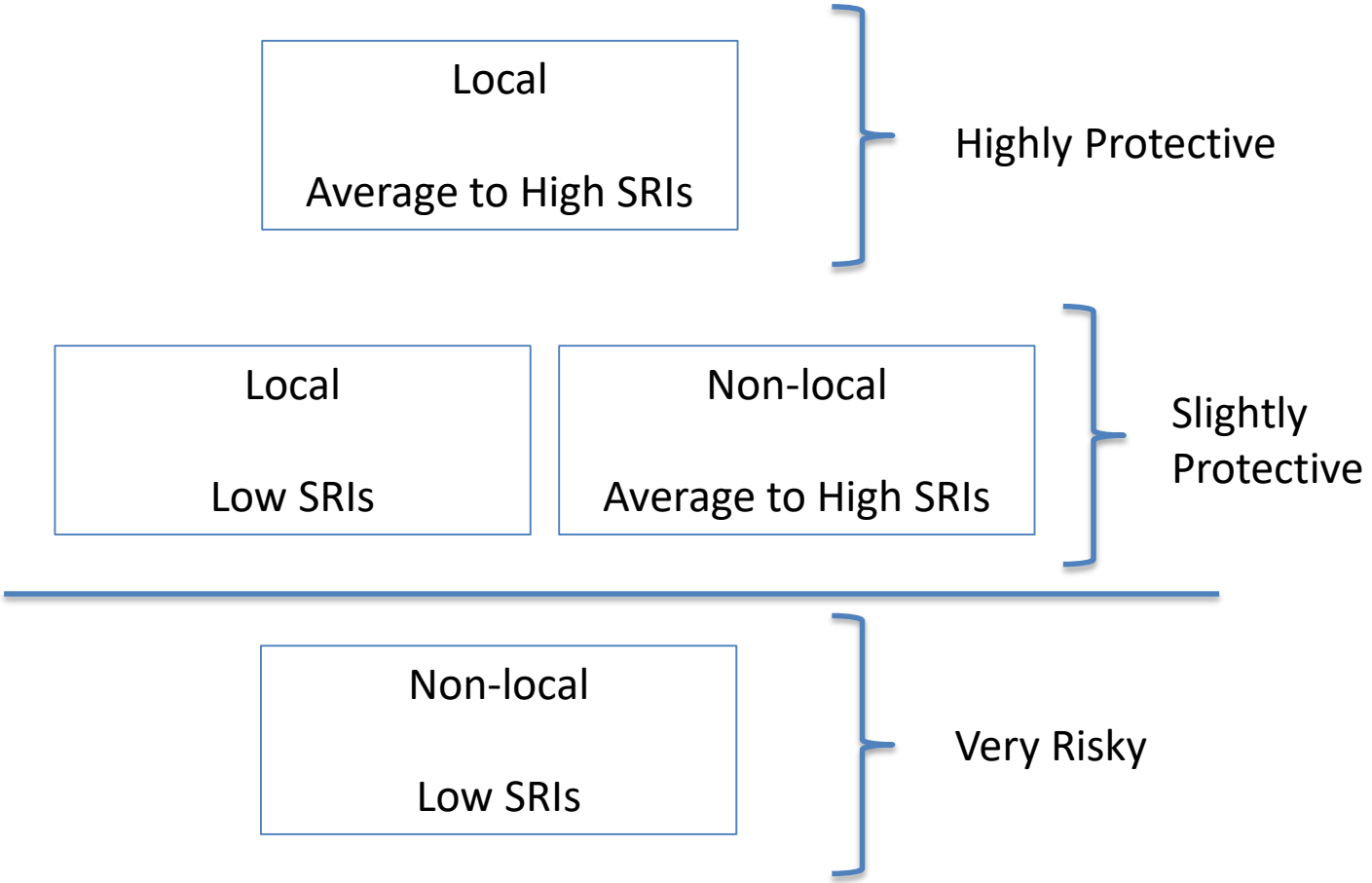

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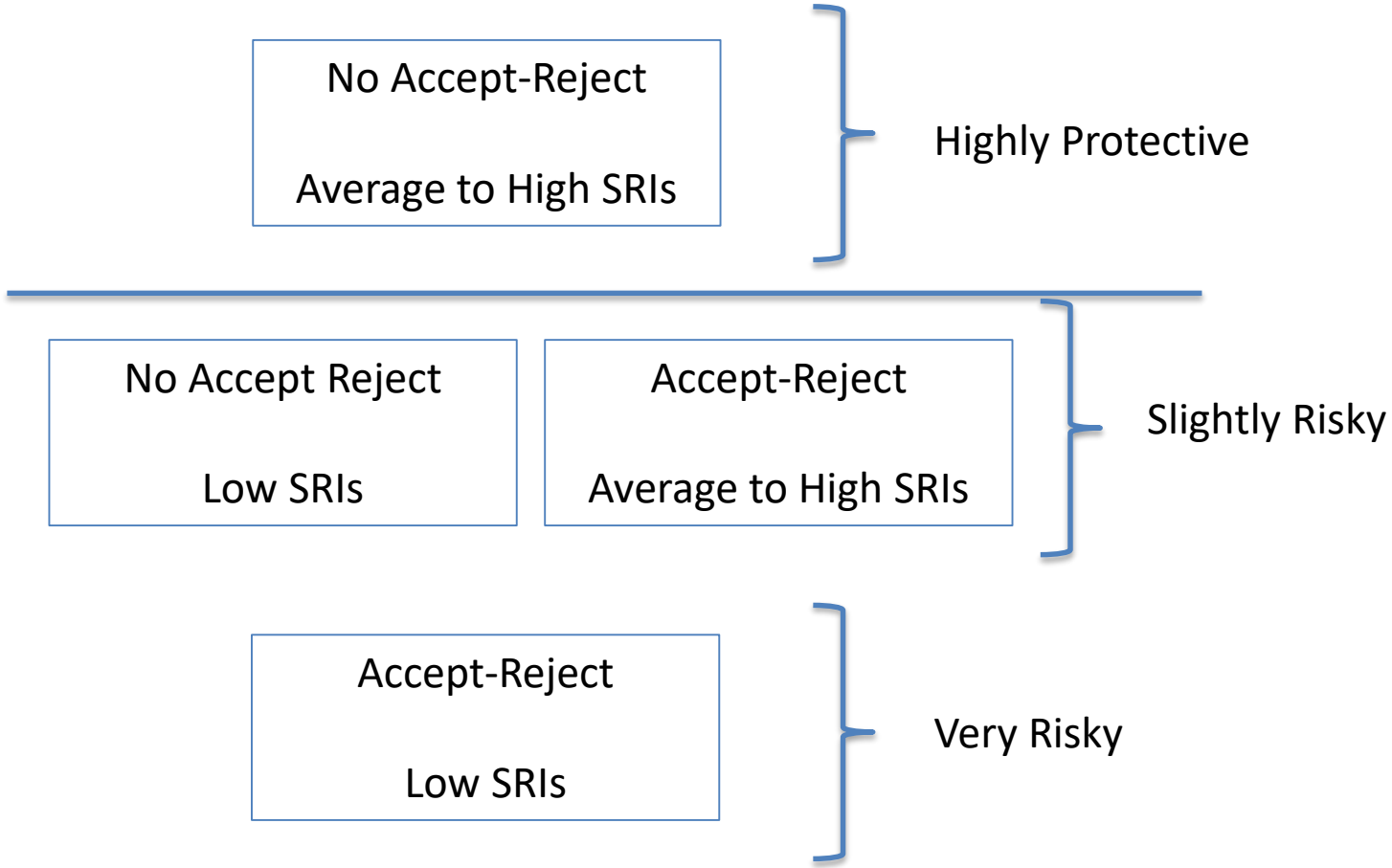

So What?

Two example interventions based on this analysis:

- Paying attention to who is teaching first year courses – particularly if they are historically difficult (High DFW)
- Trying to enhance the ‘stickiness’ of non-residence, non-local students

Text Analytics at Dalhousie

BTA Introduced in summer 2015

- Three qualitative questions
  - *Positive*
  - *Negative*
  - *Open-ended*

  } The accuracy of the analysis of all three varied based on question asked

- Before implemented did an investigation into the accuracy of the BTA analysis
- High satisfaction with the accuracy of the first question
- Tested BTA reporting with administrative users (Department Head/Dean) - asked for feedback on the value of the reporting

Blue Text Analytics

Attributes

- Relevant, Helpful, Difficult, Engaging , Expensive …

Elements

- Students, Professors, Subject Matter, Technology, …

Alerts

- Suicide, Racism, Sexism, Aggression …

Sentiment

- Positive, Negative

Cross-Tabulations; Gap Analysis; Potential Issues …

Department/Faculty Level Reports

Attributes [No. of comments]	Dalhousie [14989]	Faculty [3518]	Department [883]
HELPFUL / SUPPORTIVE	32.42 %	33.66 %	34.43 %
ENTHUSIASTIC / DEDICATED	12.96 %	15.24 %	19.71 %
INTERESTING	15.22 %	15.12 %	15.74 %
CLEAR	13.60 %	16.12 %	15.06 %
ENGAGING	14.92 %	14.41 %	14.27 %
ENJOYABLE	9.49 %	10.97 %	11.78 %
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KIND / PERSONABLE	6.19 %	6.20 %	8.72 %
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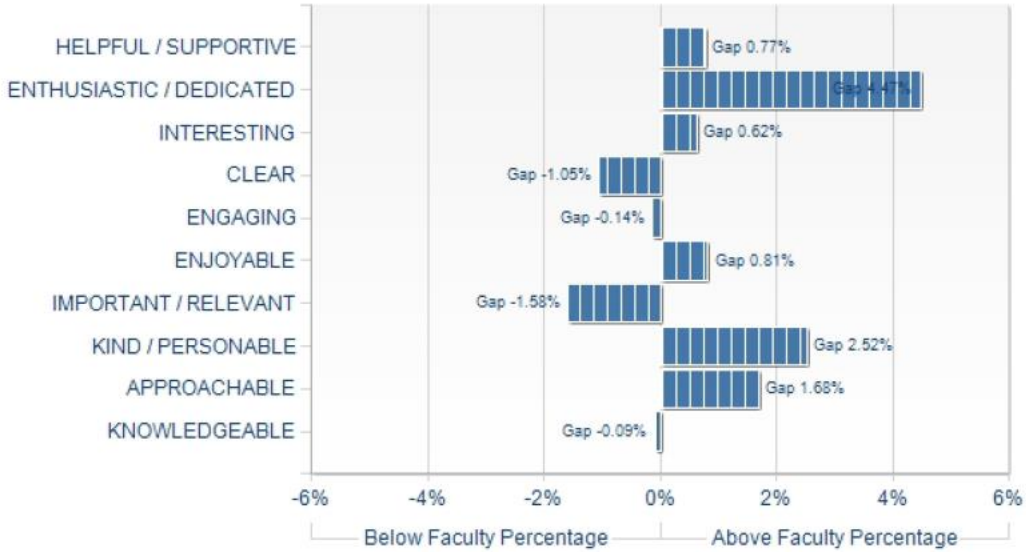

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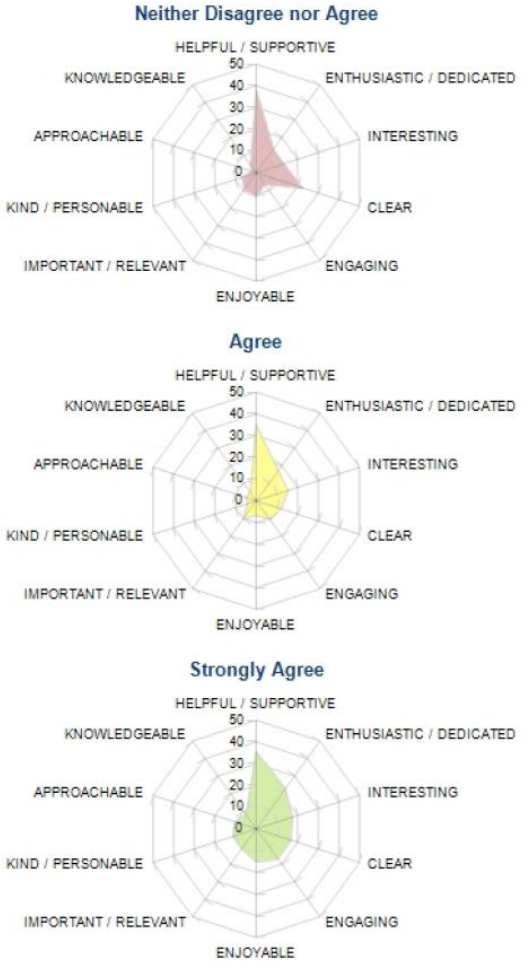

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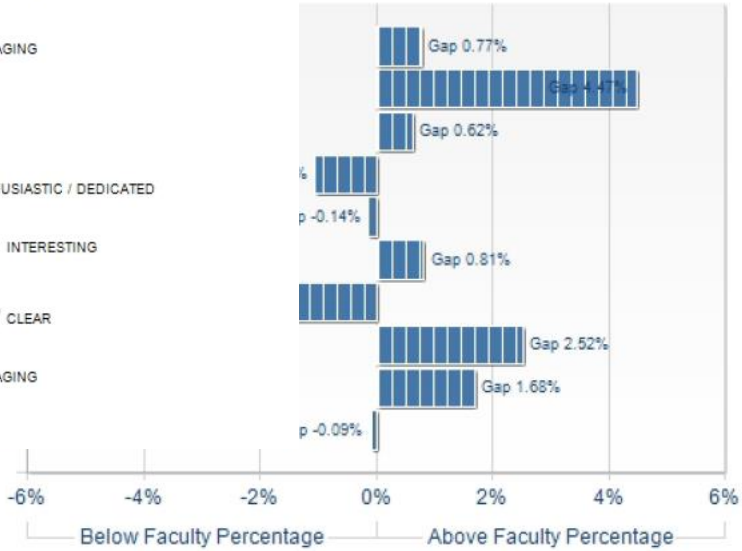

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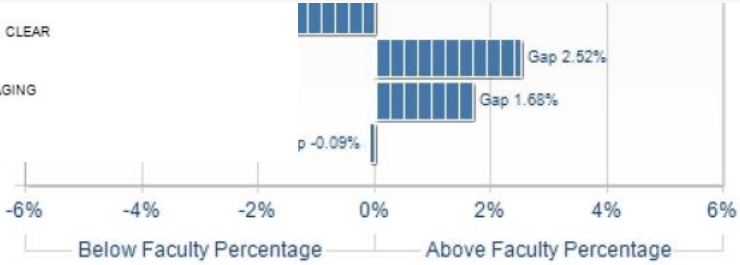

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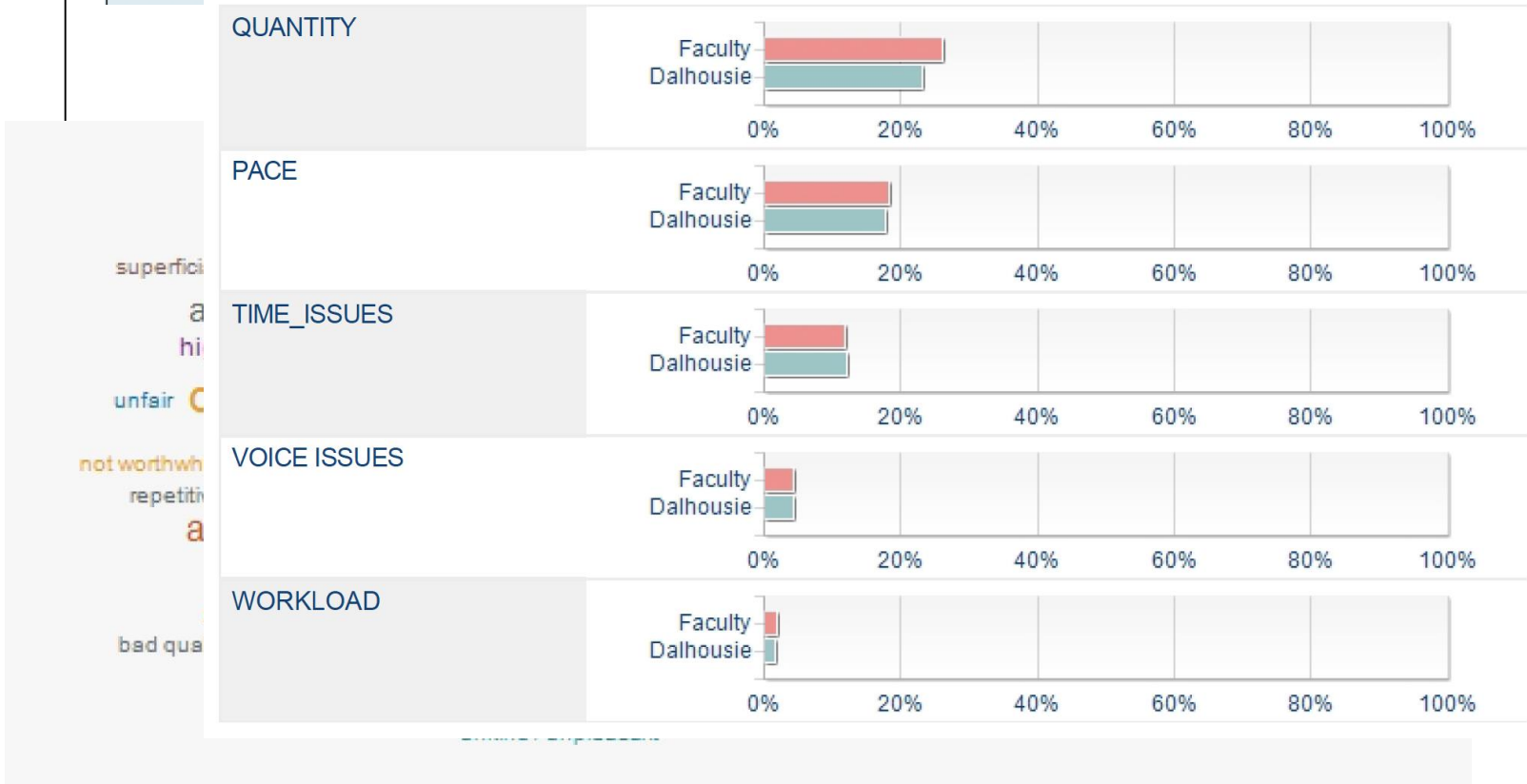

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Alerts

Immediately after the close of the evaluation period, run the BTA for Alerts as part of overall institutional mental health strategy

- Looking for alerts associated with suicide, aggression, or other potential student-in-crisis signs

Other Possible Uses for BTA

- Instructor-level reporting (particularly over time)
- Alerts for potentially harmful comments (our policy allows for the deletion of harmful – racist, sexist – comments)
- Other qualitative data sets for surveys (other evaluation projects) on campus

3. Moving Forward Analytics with Student Feedback

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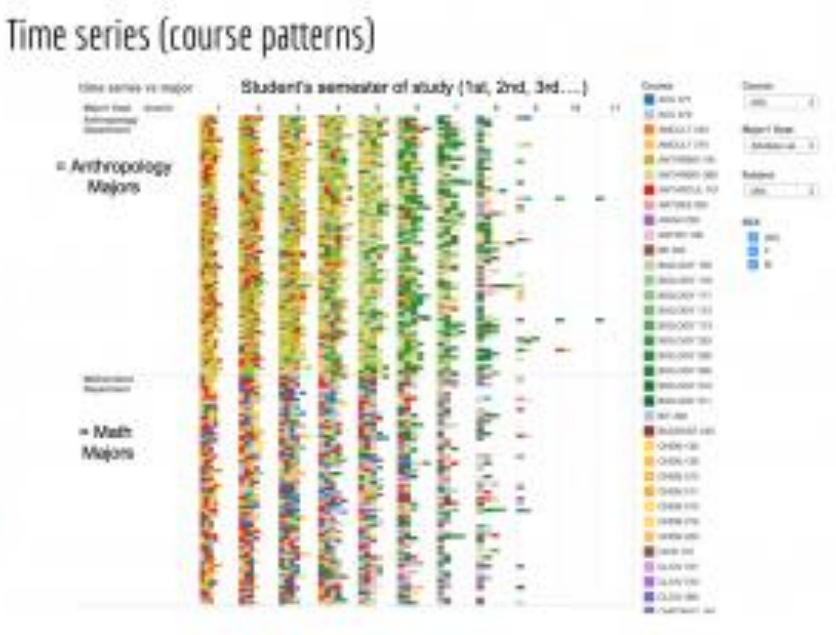
Importance of Data Visualization

- Visualization – Data is only useful if we can support faculty data literacy (particularly through intuitive data visualization)

From UBC CTLT:



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Importance of Data Support

- Support – The people who support academic leaders and faculty need to be ready to understand and interpret data

Academic Analytics

Lead for Academic Analytics

Institutional Research Office

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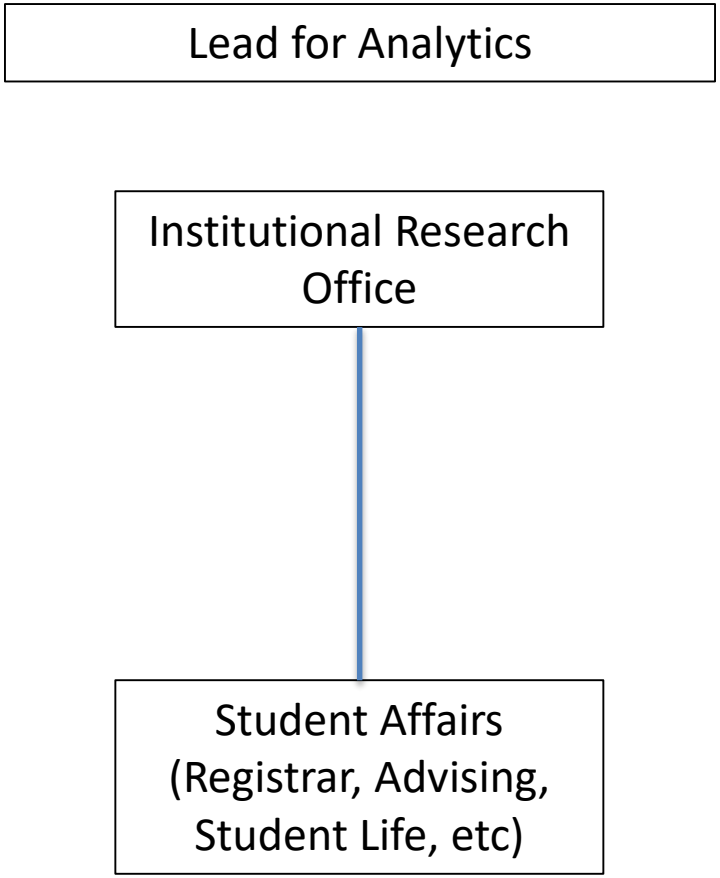
Academic Analytics



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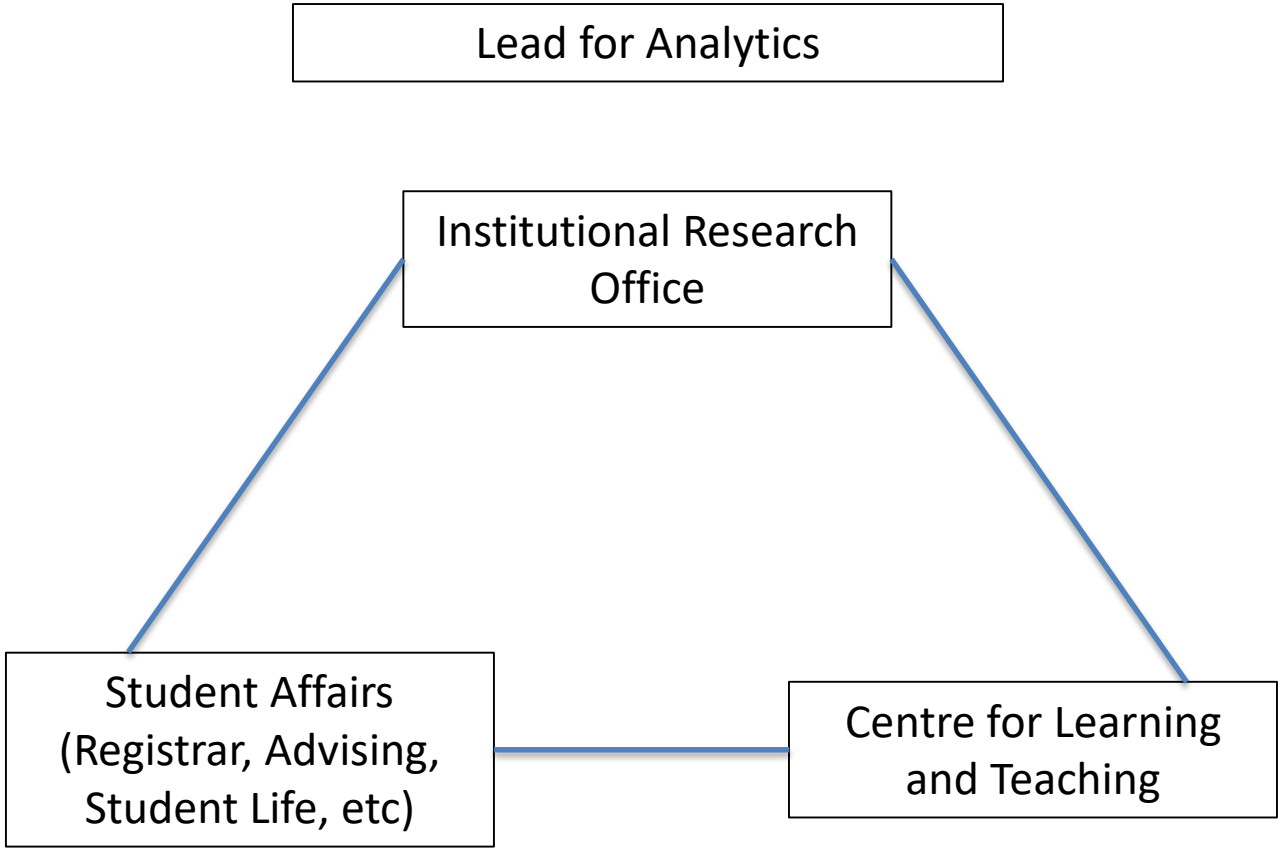

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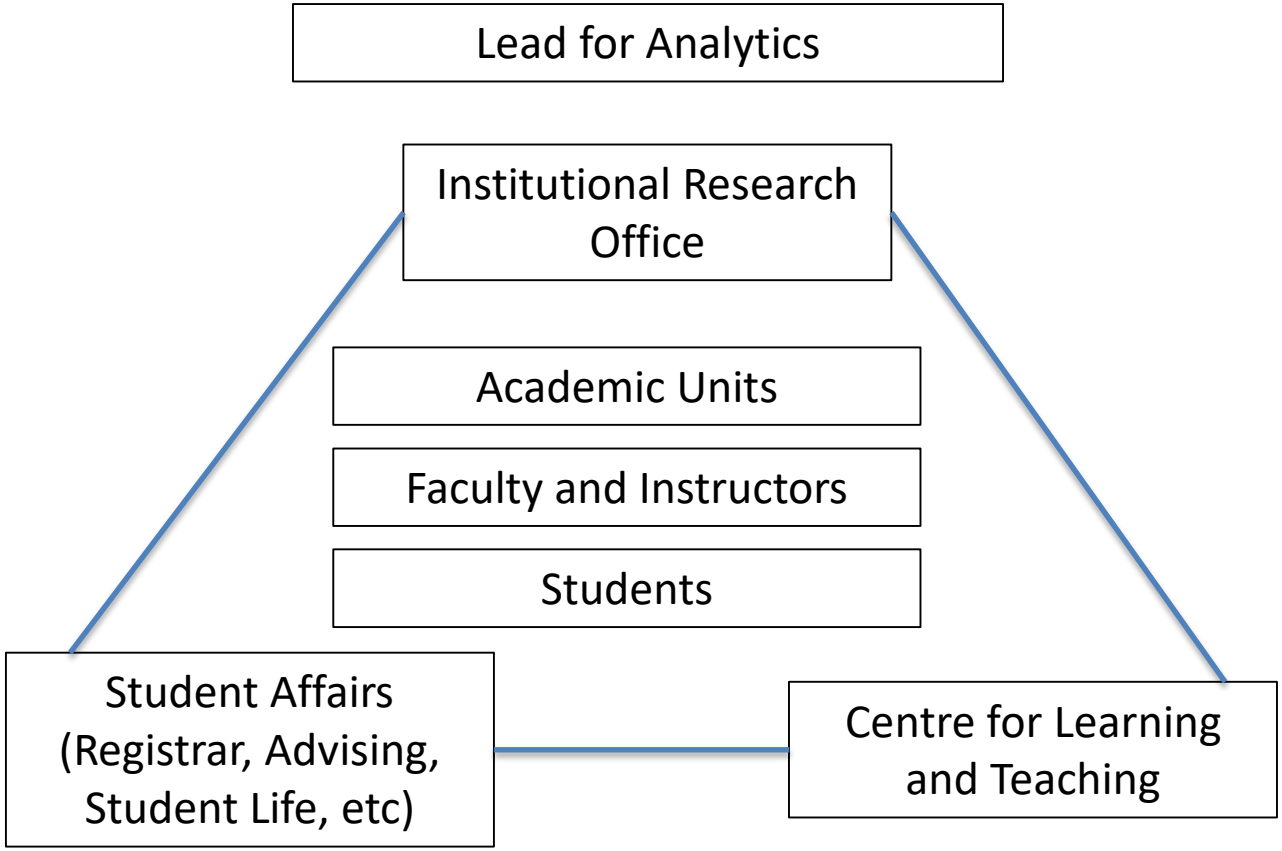

Providing the Appropriate Supports

- For academic and administrative leaders
- For faculty
- For other professionals on campus (student affairs, etc.)
- For the students themselves

- For institutional researchers and educational developers (and other expected support roles)

Are we ready to do this?

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Questions

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