



Towards Learning Analytics & Belonging

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Welcome and Overview (5 min)

Activity: **What does belonging look like?** (15 min)

Sharing: **How do you currently address belonging?** (15 min)

Presentation: **Current landscape of belonging** (15 min)

Briefing/Discussion: **How about analytics for belonging?** (30 min)

Discussion: **Next steps?** (10 min)

Agenda

Welcome and Introductions

Objectives of this session

- To open a conversation on student belonging and the possibility of analytics approaches to this important issue
- To build networks in this area for further conversations and collaborations

Learning Analytics for “belonging”

— really?

Pick a card, any card...



Visual Explorer *

We can and should use Learning Analytics to track, measure – or in some other way – help build student “belonging”.

- Take a minute to browse the cards on your table
- Choose 1 card in response to this proposal – it ‘speaks to you’ in some way
- Now take it in turns in your group:
 1. What’s going on in your picture? (don’t get symbolic or metaphorical yet!)
 2. Now explain why you chose it (symbolism + metaphor!)
 3. Group members are invited to comment
 4. (Move to next person)

* Palus, C.J., & Drath, W.H. (2001). Putting something in the middle: An approach to dialogue. *Reflections*, 3(2), 28-39.
https://www.solonline.org/wp-content/uploads/2018/08/sol_reflections_3.2.pdf

Belonging is
MULTIFACETED
and
COMPLEX



Photo by [Daniele Levis Pelusi](#) on [Unsplash](#)

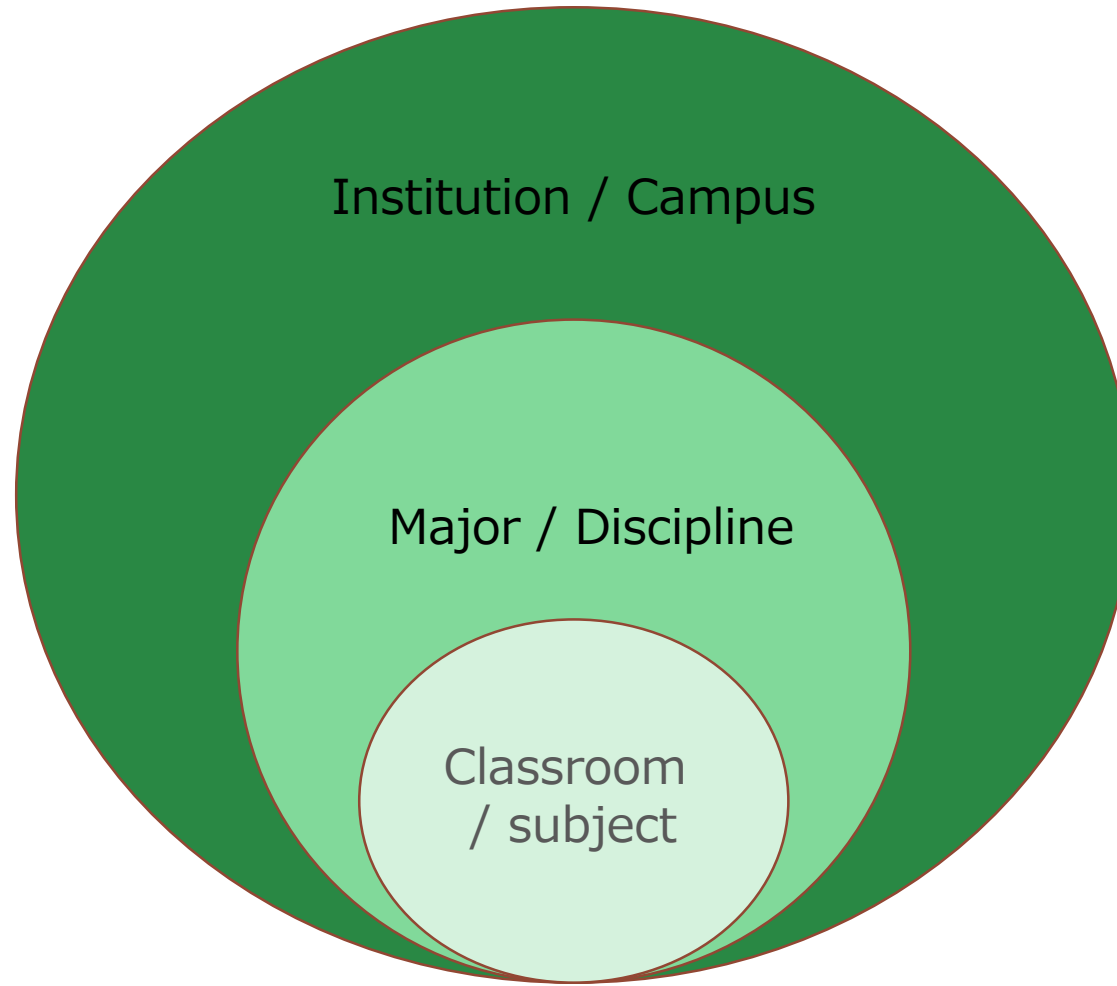
Coming to terms with belonging

- Connectedness?
- Engagement?
- Retention?
- Goodenow & Grady (1993): "Feelings of being accepted, valued, included, and encouraged by others in the classroom"
- Hoffman (2002): "the degree to which an individual perceives support and dependencies from others within a defined social context and practice"

Goodenow, C., & Grady, K. E. (1993). The Relationship of School Belonging and Friends' Values to Academic Motivation Among Urban Adolescent Students. *The Journal of Experimental Education*, 62(1), 60-71.

<https://doi.org/10.1080/00220973.1993.9943831>

Multiple levels of belonging



Different domains of belonging

- Ahn & Davis (2020): how students characterised their sense of belonging

Table 1 . Four domains of belonging with 13 sub-domains and 28 categories.

Domains	Sub-domains	Categories
Academic (541)	Academic engagement	Curriculum, University, Lecturer Education purpose, Important
Social (1,289)	Social engagement	Societies Participation Friends, Friendship, Pubs, Socialising
Surroundings (320)	Network	Communication
	Solidarity	Community feeling, Support, Team
	Living space	Accommodation
Personal space (464)	Geographical & cultural location	Locality, Culture
	Life satisfaction	Satisfaction, Dissatisfaction, Living essentials
	Life attitudes	Attitudes towards goals, Pride, Respect, Challenge, Independence
	Identity	Student
	Personal interest	Personal interest

Belonging in flux: 3 types x 3 levels

- Kahu et al. (2022): Understanding how students' sense of belonging changes over the first year
- 3 types:
 - Familiarity – people, practices, places
 - Interpersonal belonging – students' connections with people
 - Academic belonging – students' connection and fit with discipline and courses
- 3 levels:
 - University
 - Discipline
 - Classroom

How do you currently address belonging?

Aims, practices, challenges

Activity instructions

- In pairs, take 5 minutes to share about your own practices around belonging
- Some scaffolding questions:
 - What is the belonging challenge you are trying to address?
 - Which level of belonging are you targeting?
 - What strategies have you tried?
 - What were the outcomes?
 - What are the challenges?

Current landscape of belonging

A brief presentation on some novel ways of addressing belonging

Belonging Strategy @ RMIT

- Set in 2017 as an institutional Focus Area over 3 years
- Commenced as a longitudinal Belonging Project from 2011-2015
- 5 drivers of belonging were identified:
 - Learning experiences
 - Social networks
 - Physical / digital spaces
 - Extra-curricular activities
 - Student services

Belonging Strategy @ RMIT

- Belonging is measured according to a B-Score model
- Data used for B-Score – RMIT Net Promotor Score (NPS), QILT SES, RMIT SES, and International Student Barometer (ISB) surveys
- Aim: Development of a data-driven predictive tool to address attrition at an individual student level
- Method: Measuring how RMIT is performing in the five areas that drive student belonging, by mapping survey data to the different drivers of belonging
- Belonging interventions have been developed based on the institution's B-Scores

Belonging Strategy @ RMIT

- Through the analysis, priority cohorts have been identified based on lower scores
 - Indigenous
 - International onshore
 - Low-SES
- However- noted limitations of the model
 - Uneven response rates across the surveys
 - Different rating scale for Extra-curricular survey, compared to other surveys

Belonging Strategy @ RMIT

- For further reading

Wilson, Murray, & Clarke (2018). A grassroots, practical response to student belonging through learning and teaching experiences. *Presented at the 4th International Conference on Higher Education Advances (HEAd'18)*, Universitat Politècnica de Valencia, Valencia, 2018.

<http://dx.doi.org/10.4995/HEAd18.2018.8091>

<https://sites.rmit.edu.au/belonginginthe curriculum/>

Belonging survey @ Georgetown U.

- Small elite university in the heart of Washington DC
- “Micro-narratives” gathered from 86 1st Gen undergrads: stories of their personal experiences around belonging/alienation
- Summary: <http://thehub.georgetown.domains/realhub/experience/student-sense-of-belonging-at-georgetown-first-generation-undergraduate-student-experiences/>
- Report: <http://thehub.georgetown.domains/realhub/the-belonging-study/>

Belonging survey @ Georgetown U.



two chances to re pronounce them. There was only one other Latina in the classroom, who I knew and her name was common-- Maria, her name was pronounced. Then he got to mine. I already knew the perplexed look. So before he could even try, he looked at me and all I did was say [student name]. I waited for him to attempt. He replied: sorry, I don't speak Spanish and moved on. From then on he never attempted, not once, to pronounce my name. Every time I participated in class he would just point at me. That was my first class at Georgetown. That was my first interaction with a professor. I was not going to be given the respect of my white counterparts. My name did not deserve a mere attempt. I was used to having people mispronounce it, but not to have them ignore it so bluntly.

Belonging survey @ Georgetown U.



"Often at times professors will address the class or bring in real world examples that they think apply to the class. These examples sometimes presume one's economic, educational, and familial background or they will reference some aspect of the Georgetown experience that is inaccessible to students who don't fit into the majority. It is during these moments when I most feel unseen. Not only do I feel unseen, but I feel like I have no place here at Georgetown. I recognize that their anecdotal evidence and examples are meant to act as vehicles of learning for students, but because I cannot identify with the presumed narrative of a Georgetown student, I feel that what they're teaching isn't for me. I feel like professors are not talking to me when they address the class as a whole, I feel like I'm not a part of the lesson. I feel invisible and unseen and because of that I feel like I don't belong here at Georgetown at all. The only time I feel seen is when I'm with others who feel invisible."

Belonging survey @ Georgetown U.



"I felt a part of Georgetown when I was at a GSP Sophomore Summit this past Fall, 2018. We went through a series of activities which mostly just focused on stress relief. However, the last activity was constructing a poem based on our previous life experiences. Everyone in my group shared something different, but something important about their life nonetheless: the loving family they came from, their migration to America, their struggles financially, familial issues with addiction or abuse. There was a variety of both good and tough situations. The resiliency was what made me feel so proud to be a Hoya. There may be issues at this school with privilege, but I felt in that moment that the power of the people I was with outweighed every other moment where I had come face to face with privilege."

Belonging survey @ Georgetown U.



“Earlier this semester, I had the opportunity to attend 1vyG, the largest first-generation, low-income student conference in the nation, as a Georgetown delegate, alongside six other amazing Hoyas. Throughout our time at the conference, being able to share my struggles and stresses and my triumphs and victories as a first-generation student of color with our delegation, illuminated a new, profound sense of solidarity. To me, our small, yet powerful delegation represented the best of Georgetown because we recognize that even though our identities could make life on the Hilltop difficult, we continue to be fearless, unapologetic, and determined. Georgetown is not Georgetown without its black, brown, low-income, first-generation, undocumented, queer, etc. student population, and being part of this illustrious community on campus has been one of my greatest blessings.”

Belonging @ UTS

(2018) **Beginning with Belonging: Supporting students in the first classes in first year**

Andy Leigh & Alex Thomson (Science), Jan McLean (IML)

- FFYE funded project in the Faculty of Science
- Focused on the micro-practices that supported student belonging
- Resources and blogs produced for teaching staff

'Build a sense of belonging and help students feel at home in your subject'

Belonging @ UTS

(2020) **Belonging in Business**

Simone Faulkner & James Wakefield (Business), Tyler Key (TD School), Alisa Percy & Kathy Egea (IML)

- Student survey and co-design workshop in the Faculty of Business
- Focused on the micro-practices that supported student belonging
- Infographic produced for teaching staff

Belonging @ UTS

What could be done to help you feel a sense of belonging in your subjects?

Social engagement Relationship-focussed activity - Small group learning - Interaction

Academic engagement Tutor engagement - Facilitation - Explanations - Support

Quality of delivery Face to face classes - Live interactive lectures - Improving online classes

* The survey themes then taken into the co-design workshop with students to seek their reflections on their data, how it resonates with their own experiences, and what practices they feel make a difference to their sense of belonging.

Belonging @ UTS

Analysis of co-design workshop

Belonging is feeling

CAPABLE - feeling a sense of achievement and growth that aligns with those around you

WARMTH - from the people you engage with, and from the learning environment

CONNECTED - to people with shared ethics, values and goals, having people to reach out to

CONFIDENT - to share your thoughts, to voice opinions and ideas without feeling judged

VALUED - like you have been heard, and your contributions recognised and respected

Belonging @ UTS

I feel like I belong when I feel like I am valued and appreciated, so when my presence isn't just a student in a classroom, but someone who has ideas and perspectives. I also think I belong when people are warm. I think sometimes at uni, people are a bit cold, and they don't want to make friends, and I can feel dehumanised, so when there's a warmth there, I also feel I belong.

(UTS Business student, 2021)

Belonging @ UTS

UTS Resource and blog collection on belonging: <https://lx.uts.edu.au/blog/tag/belonging/>

Source: Building belonging in 2022



Building Belonging

Building students' sense of belonging involves humanising the educational experience, ensuring it is not merely transactional, but deeply relational, personal and potentially transformative.

The Practices	The Principles
Reaching out early Welcome email before session Warm welcome video on Canvas Online icebreaker/ introductions Get to know your students	Communicating care and concern Warm and friendly language and tone Expressing high expectations Validating students' experiences
Setting the tone for engagement Triple-check the accessibility of learning materials Getting started in your first class Annotate the subject outline Provide a way to ask questions during class	
Building capability Celebrate and value diversity in the classroom Integrate academic literacy development Teach compassionate micro-skills in groupwork	Fostering meaningful encounters Valuing relationship-focused activities Facilitating respectful dialogue Noticing and acting on exclusion
Fostering professional identity Stories of professional experience Explore careers from the first year of study Interviews with industry professionals	
Promoting feedback as learning Make your feedback warm and wise Use audio or video to humanise the feedback Embed opportunities for feedback/ feed forward Provide opportunities for self and peer feedback Seek feedback from your students	Practising radical inclusion Celebrating diversity Starting from where students are Providing direction and scaffolding Connecting the personal and professional
Facilitating ongoing engagement Weekly email or Canvas Announcement Interactivity and teacher talk on Canvas Chat time in class Regular active and collaborative learning activities Encouragement to connect on social media and access UTS Clubs and Societies	
Celebrating and Showcasing Curation of learning in portfolio Student conference/ gallery walk	Inspiring agency Providing choice and flexibility Appealing to future goals Sparking students' imagination about their purpose in the world



AMAZING THINGS HAPPEN

What are you noticing that has changed?
How can you evidence this?
What would you like to try next?

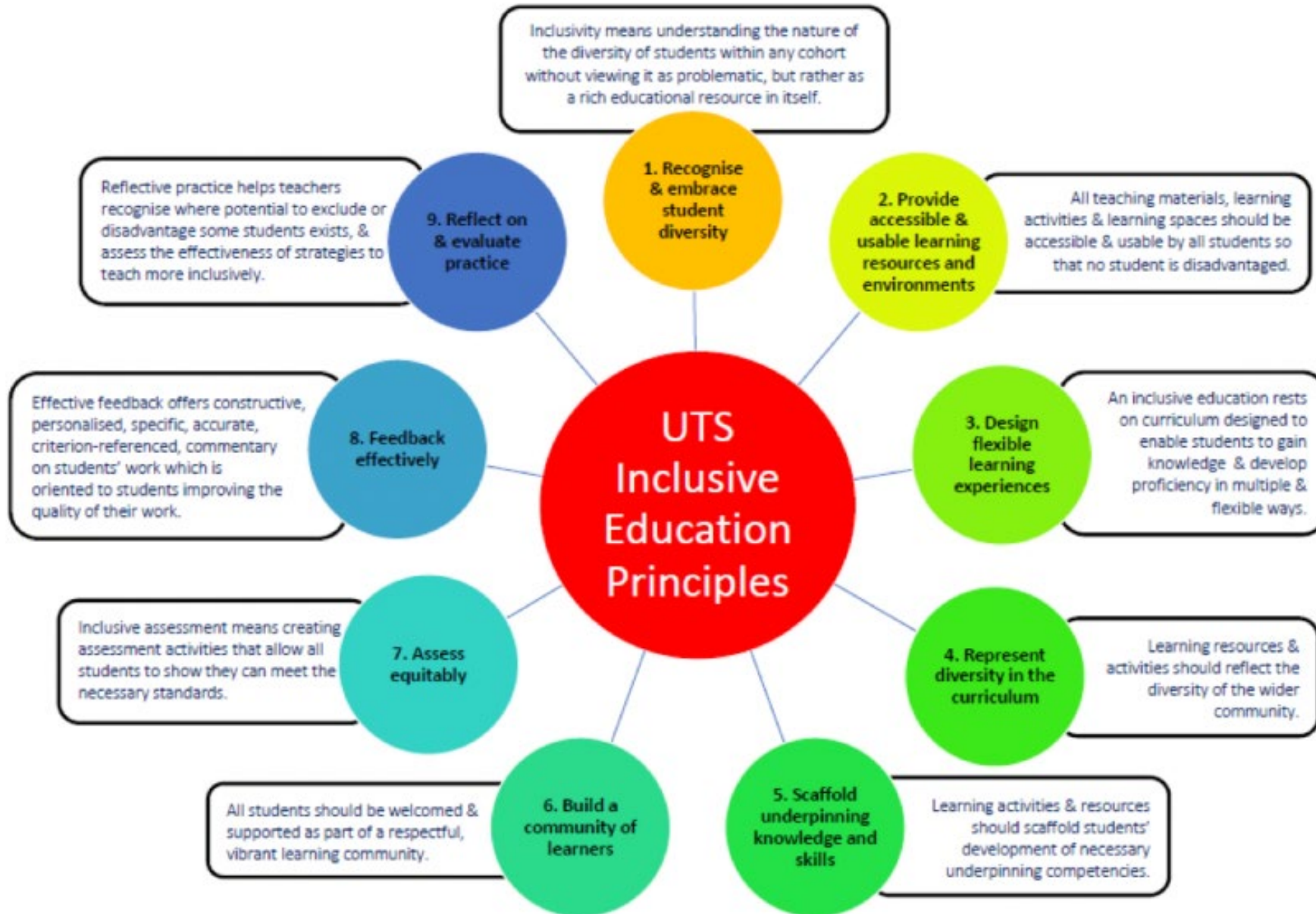
References

Feller, P. & Lambert, L. (2020) *Relationship-rich Education: How Human Connections Drive Success in College*. Johns Hopkins.
Gibbs, P. (Ed.). (2017). *The Pedagogy of Compassion at the Heart of Higher Education*. Springer.
Pecansky-Brock, M., Smedshammer, M., & Vincent-Layton, K. (2020). Humanizing Online Teaching to Equitize Higher Education. *Current Issues in Education*, 21(2).
Thomas, L. (2012) *Building Student Engagement and Belonging in Higher Education at a Time of Change*. Higher Education Academy.

If you are interested in accessing support to build belonging in your course or subject, please contact the Teaching and Curriculum Team in IML.
Alisa.Percy@uts.edu.au



Belonging @ UTS



What about analytics for belonging?

Some approaches, and discussion...

In search of belonging: A number of LA strategies are emerging

Student self-report

Experience sampling methods and platforms

Social Network Analytics

Narrative Analytics

Scaleable personalised communications

Modelling belonging formally

Others?...

In search of belonging:

Student self-report (1) - PSSM

- Psychological Sense of School Membership, PSSM (Goodenow, 1993)
 18 items, 5-point likert scale
 Comprises 3 subscales: general sense of belonging, teacher support, peer acceptance
 Very widely cited instrument
 Adapted for University / HE settings (e.g., Freeman et al., 2007; Pittman & Richmond, 2008; Zumbrunn et al 2014)
 Has been used to measure belonging at 2 levels: class & institution (e.g., Freeman et al., 2007; Zumbrunn et al 2014)

PSSM Example items

- I feel like a real part of [school].
- People notice when I'm good at something.
- It's hard for people like me to be accepted here. (Rev)
- Most teachers at this school are interested in me.
- People at this school are friendly toward me.
- I am treated with as much respect as other students.
- I feel proud of belonging to [school].

In search of belonging: Student self-report (2) - PISA belonging index

- PISA's sense of belonging index (cited in Pedler et al., 2022)
- 6 items, 5-point likert scale
- Not widely used in higher education but is “an established, internationally implemented index used to measure a sense of belonging” (Pedler et al., 2022)

PISA belonging index items (adapted for HE)

- I feel lonely at University.
- I feel like an outsider (or left out of things) at university.
- I feel out of place at university.
- I feel like I belong at university.
- I make friends easily at university.
- Other students seem to like me.

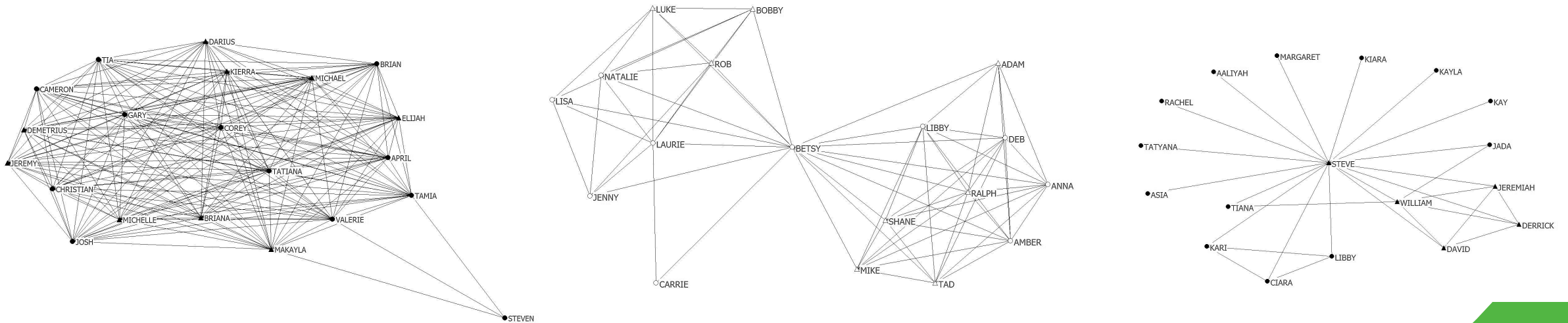
(Pedler et al., 2022)

In search of belonging: Experience Sampling Surveys (ESS)

- Murphy et al. (2020) describe how they disseminated daily ESS to assess students' belonging over 9 days following an intervention
- The ESS comprised 10 items measuring students' perceived social and academic fit
- Example items:
 - I feel comfortable at [school name].
 - I belong to [school name].
 - Students at [school name] are a lot like me

In search of belonging: Social Network Analysis

- McCabe (2016) used SNA to analyse friendship network groups and how they related to social and academic benefits



McCabe, J. (2016). Friends with Academic Benefits. *Contexts*, 15(3), 22-29.

<https://doi.org/10.1177/1536504216662237>

In search of belonging: Narratives

- Felten & Lambert (2020) : Interviews with 385 students, faculty and staff across more than 20 HE institutions in the US
- Key insights from qual analysis:
 - Relationships are critical for fostering students' sense of belonging
 - 4 'interlocking relationship-building principles' for belonging (p.18):
 - Every student must...
 - 1. experience genuine welcome and deep care
 - 2. be inspired to learn
 - 3. develop a web of significant relationships
 - 4. explore questions of meaning and purpose

Felten, P., & Lambert, L. M. (2020). *Relationship-rich education: How human connections drive success in college*. JHU Press.

Narrative Analytics @ Georgetown U.



Online survey integrated into a narrative analytics platform (SenseMaker)

<https://thecynefin.co/sensemaker/>

Respondents 'code' their stories themselves

G **SENSEMAKER**

What is this Survey?

This survey seeks to better understand student experiences at Georgetown. By using student narratives, we hope to learn about the nuances that conventional surveys fail to uncover. The survey that follows takes about 15 minutes to complete. **We encourage you to read through the entire survey on the page below to understand what questions we are asking before you begin.**

Please respond to the prompt below. Please share only one story with us. If you have more than one story, we welcome you to take the survey again after you complete your first story.

Think of a meaningful time you felt a part of or not a part of Georgetown. Please describe what happened in 1-2 paragraphs.

Please give your story a title.

Prompt

Student enters
story here



Drag a single dot within the triangle where it best describes the moment you shared in your story above.

Example Triad: If there was support in my story, it came from:

Georgetown Staff

If support came from only GU Staff and GU Faculty about equally

If support came from mainly GU Staff, a little bit from Family, and a bit more from GU Faculty

If support came from all three equally

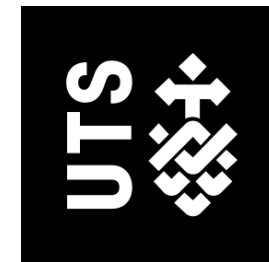
Georgetown Faculty

Family

☐ N/A

If none of these choices apply

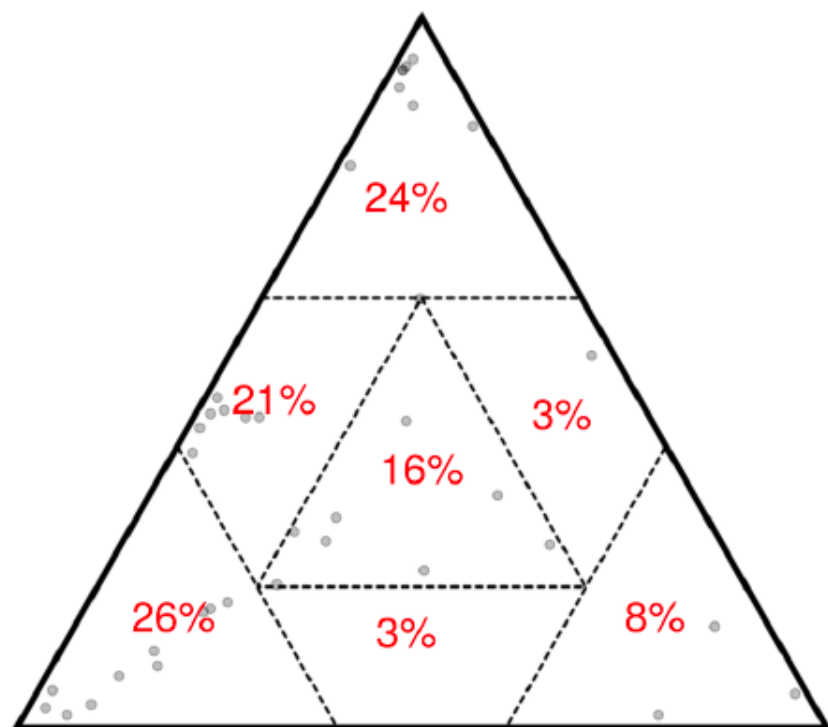
Narrative Analytics @ Georgetown U.



Online survey integrated into a narrative analytics platform

If there was alienation in my story, it came from...

Georgetown Staff (Staff of GSP, CMEA, Campus Ministry, etc.)

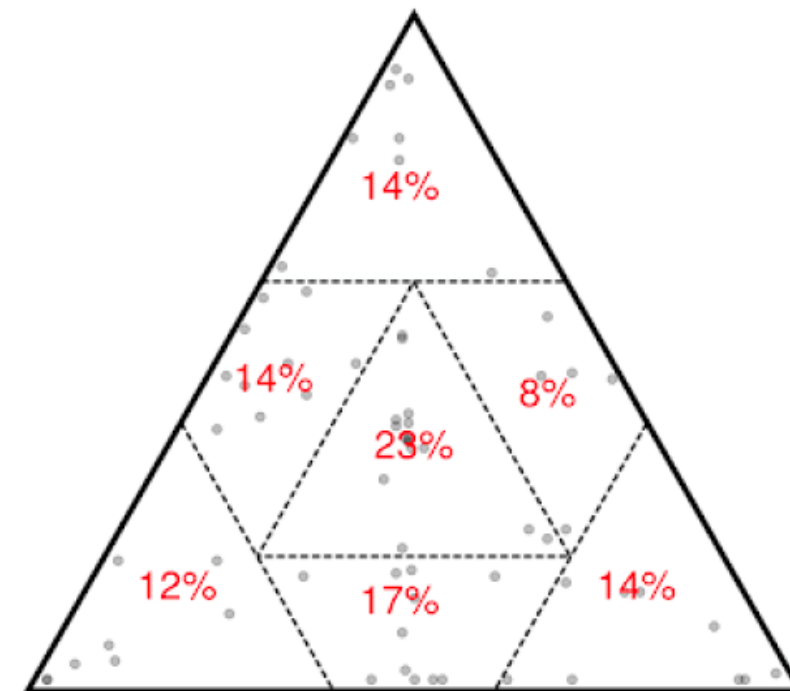


Georgetown faculty (e.g. Professors)

Family

If I felt discouraged to turn to my family for support at the time of my story, it was because:

They wouldn't understand.



I feel responsible for handling this on my own.

I didn't want to burden them.

Narrative Analytics @ Georgetown U.



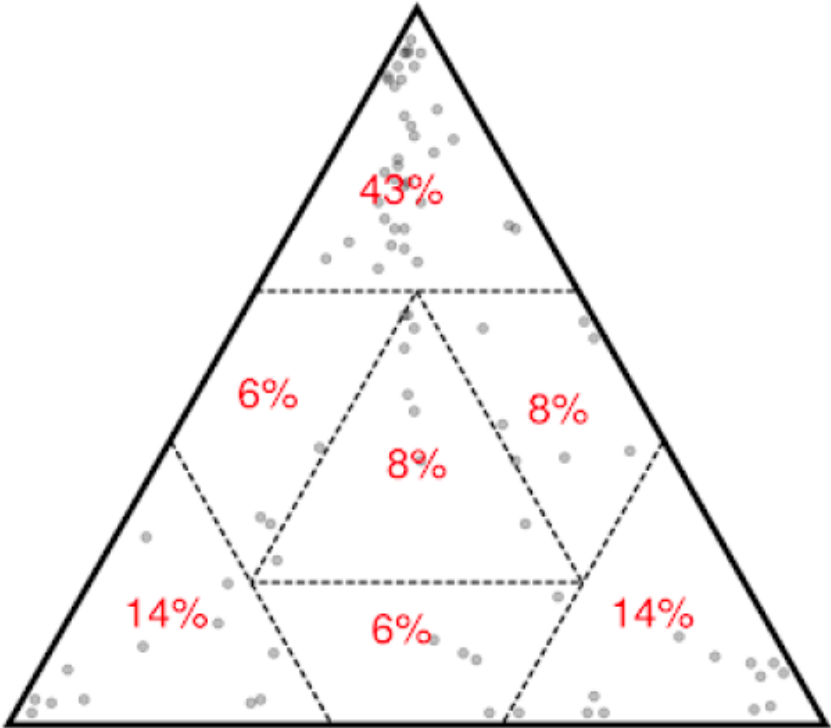
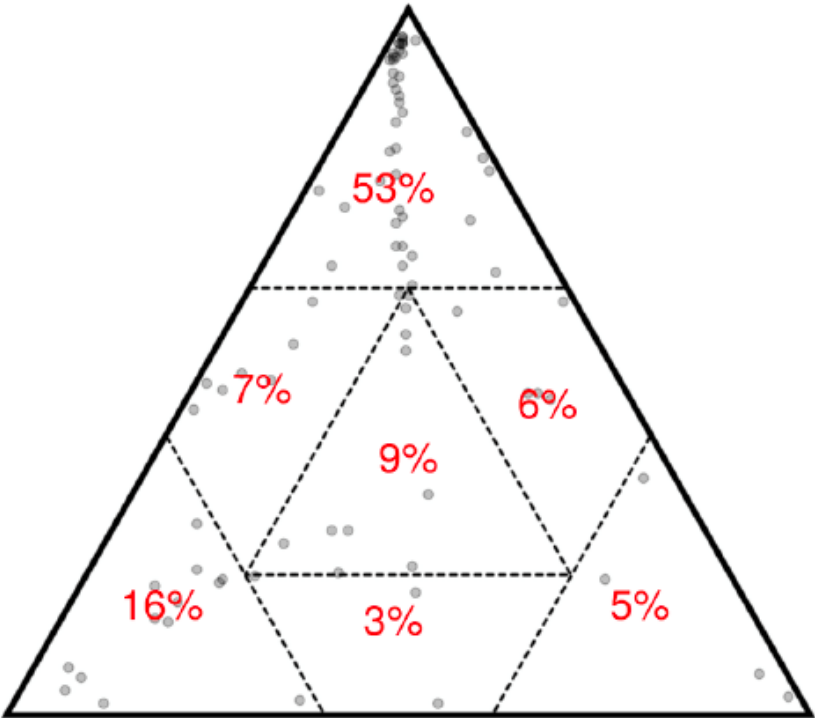
Online survey integrated into a narrative analytics platform

At the time of my story, the campus culture felt:

In reflecting back on my story, I now feel:

Individualistic

Validated / Heard / Affirmed



Welcoming

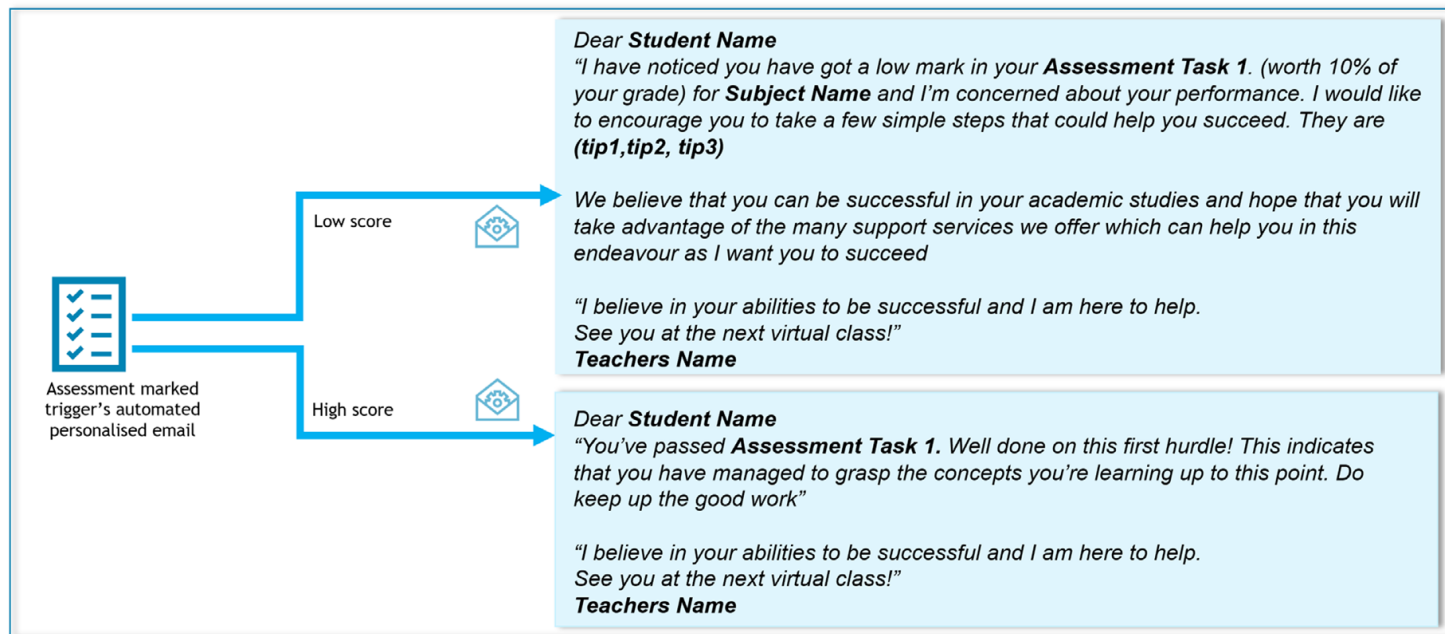
Like an environment I'm used to

Indifferent

Disillusioned

In search of belonging: UTS use of LA-informed personalised feedback messaging to build belonging

- Emerging evidence that feedback personalised to individual learning progress, together with interactive course design, can foster belonging



it was good to see that the **faculty is taking as much interest** as you are taking in the subject.
 I mean, in terms of personalising it and **focusing on me**.
 ... So it did motivate me'

[Focus Group Respondent 2]

In search of belonging: Towards an LA “Belonging Quotient”?...

- If we had a robust theory of belonging, could aspects of it be modelled formally in an LA system, in order to calculate a “BQ”?
- Is this data-intensive quantification gone mad?
- Step 1: what *do* we understand to be the drivers of belonging?

Your 'theory of belonging' can be expressed by mapping the key drivers in your context

- What do you see as the drivers of belonging in your context?
- Which level are you aiming to target – Institutional, discipline/major or classroom?



***Belonging* driver diagram exercise**

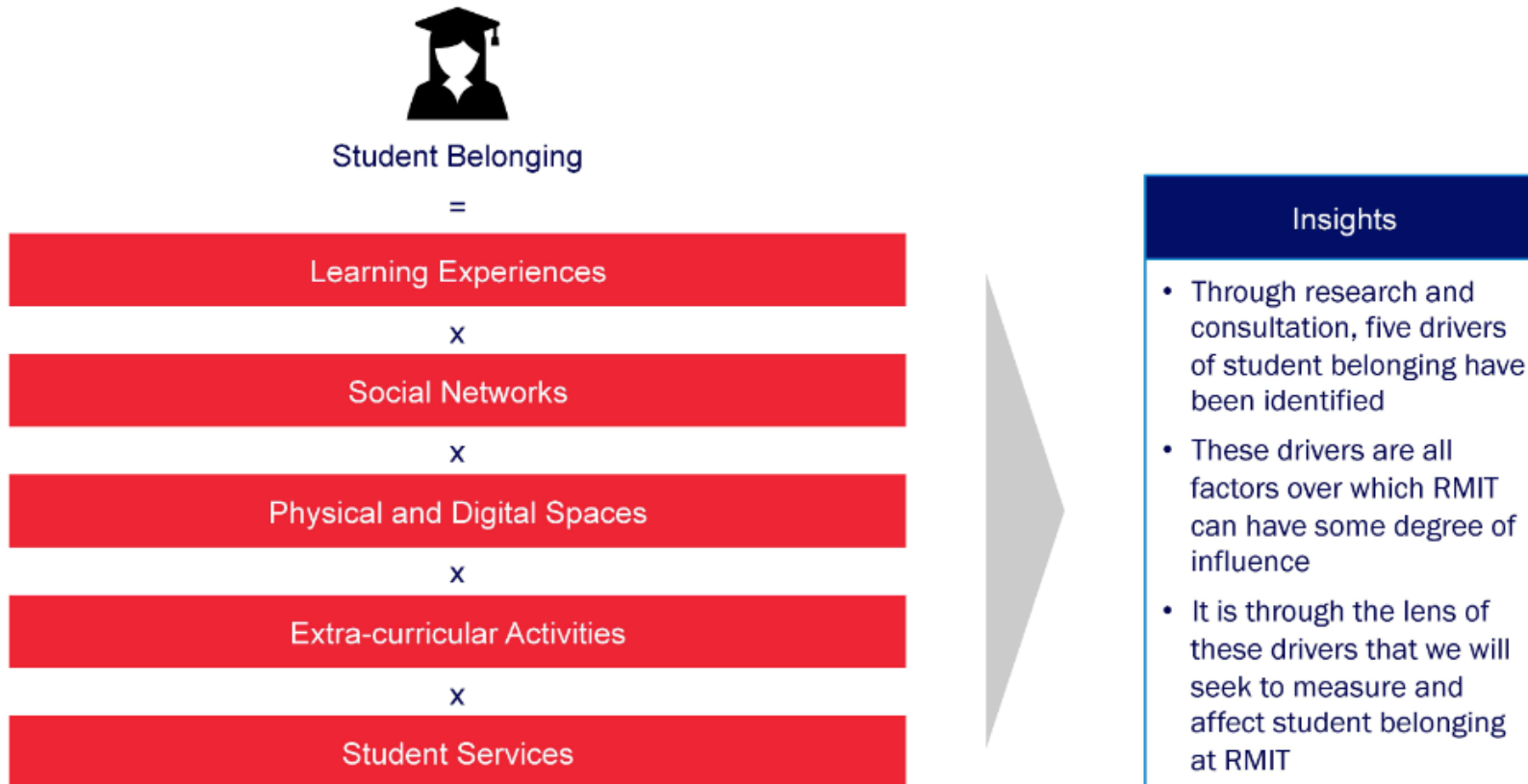
- Aim of this group activity: To identify drivers of belonging and the data that are proxies of these drivers
- Materials provided: Flipchart sheet, texters... and your collaborative brainpower :)

Example: RMIT driver diagram

<https://sites.rmit.edu.au/belonginginthe curriculum/about/drivers/>



Student belonging sentiments are driven by a range of factors and experiences, many of which RMIT can control or influence.



This is an institutional strategy lens

Does not connect to how data could help track belonging

Source: RMIT Belonging Project, 2011-2016; Consultations with RMIT staff and students, 2017.



***Belonging* driver diagram exercise:**

Instructions (Part 1)

- Each group grab a flipchart sheet and partition it into 3 parts lengthwise by folding it

***Belonging* driver diagram exercise:**

Instructions (Part 2)

Consider the following:

What do you see as the key drivers for student belonging?

Make a list of 3-5 possible drivers horizontally on the top partition of your sheet.

***Belonging* driver diagram exercise:**

Instructions (Part 3)

Now consider the following:

What do you see as possible analytics for exploring these drivers?

List these under each driver, in the middle partition of your sheet.

***Belonging* driver diagram exercise:**

Instructions (Part 4)

Finally, consider the following:

What might be some data sources for these analytics?

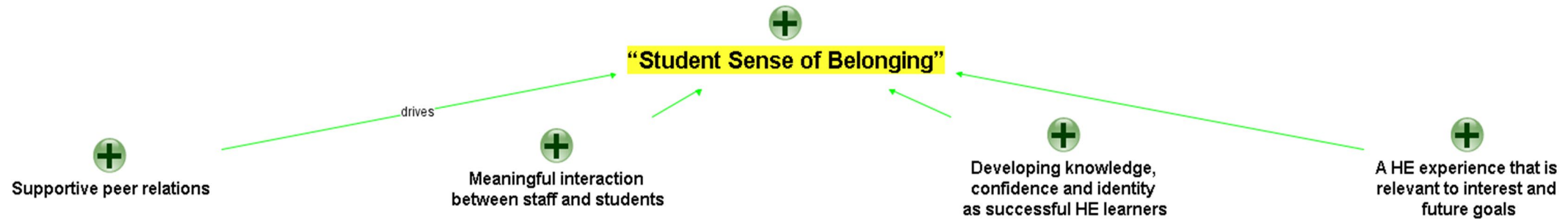
List these under each of the analytics identified, in the bottom partition of your sheet.

An example Driver Diagram with LA



HEA 2012 Report

Key Drivers



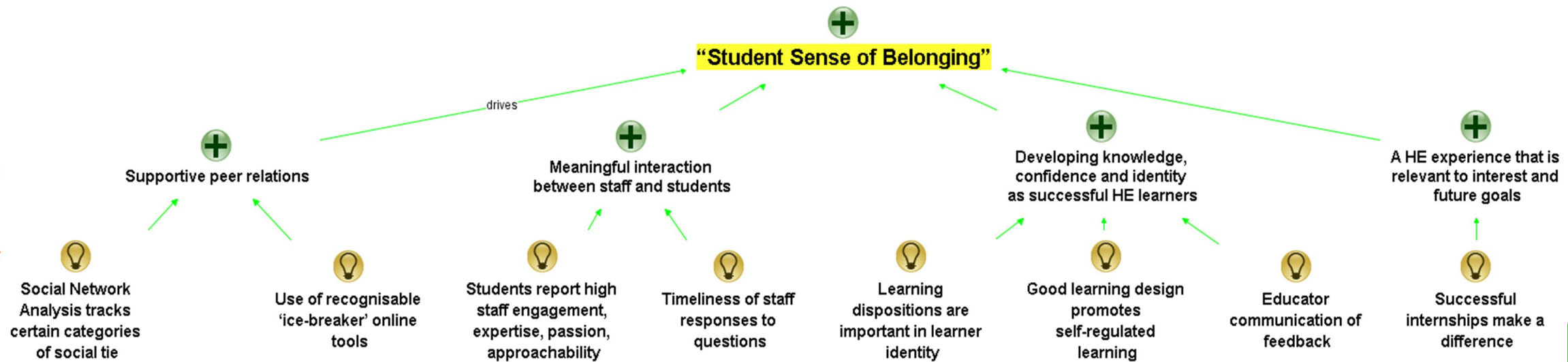
An example Driver Diagram with LA



HEA 2012 Report

Key Drivers

Potential Analytics



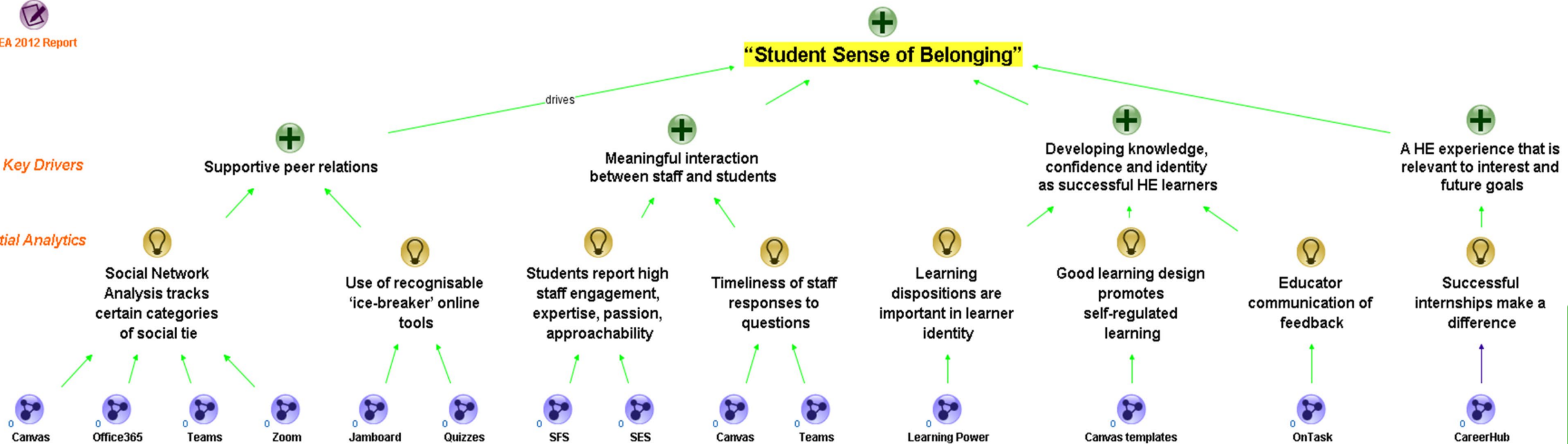
An example Driver Diagram with LA



HEA 2012 Report

Key Drivers

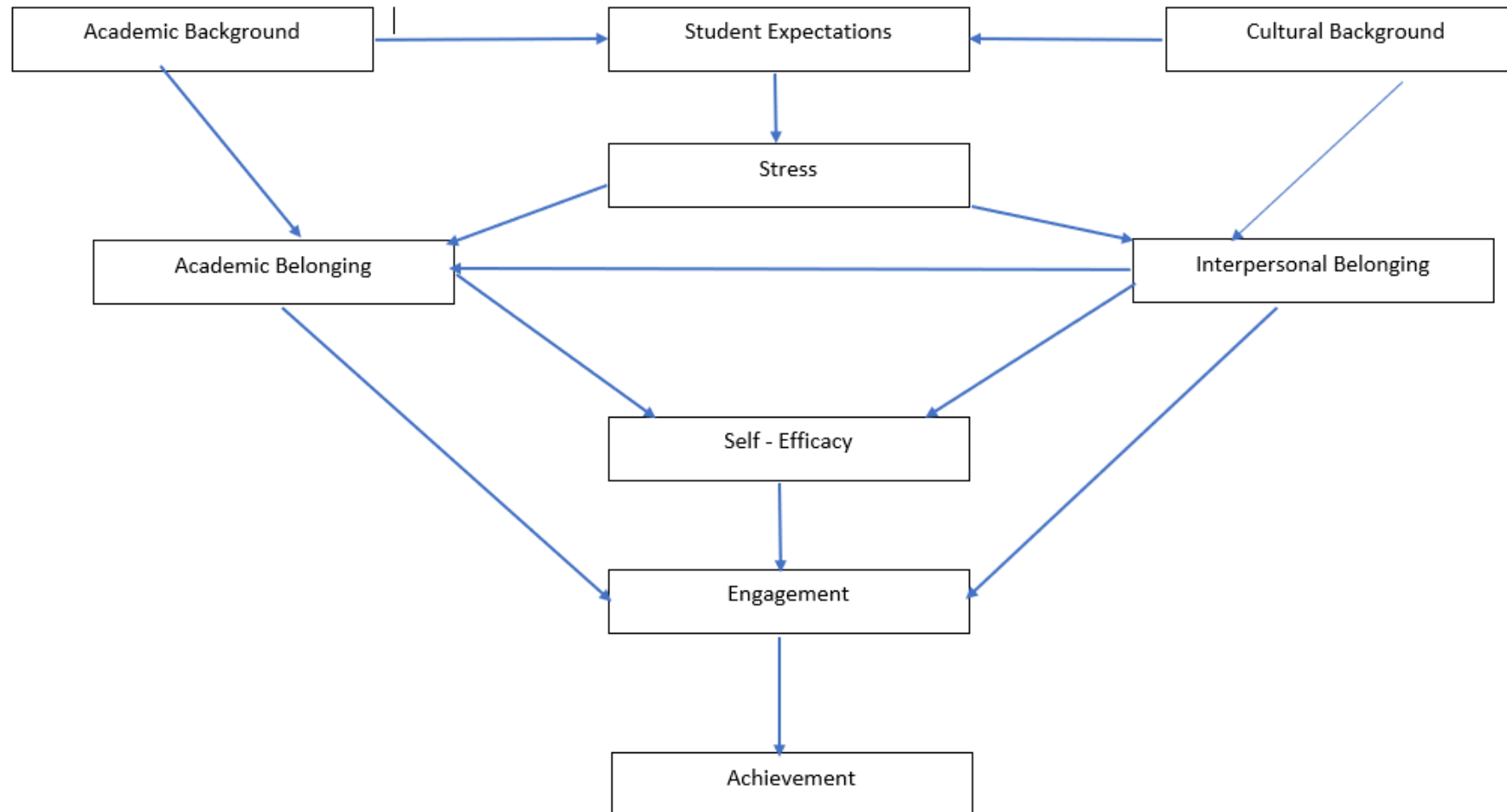
Potential Analytics



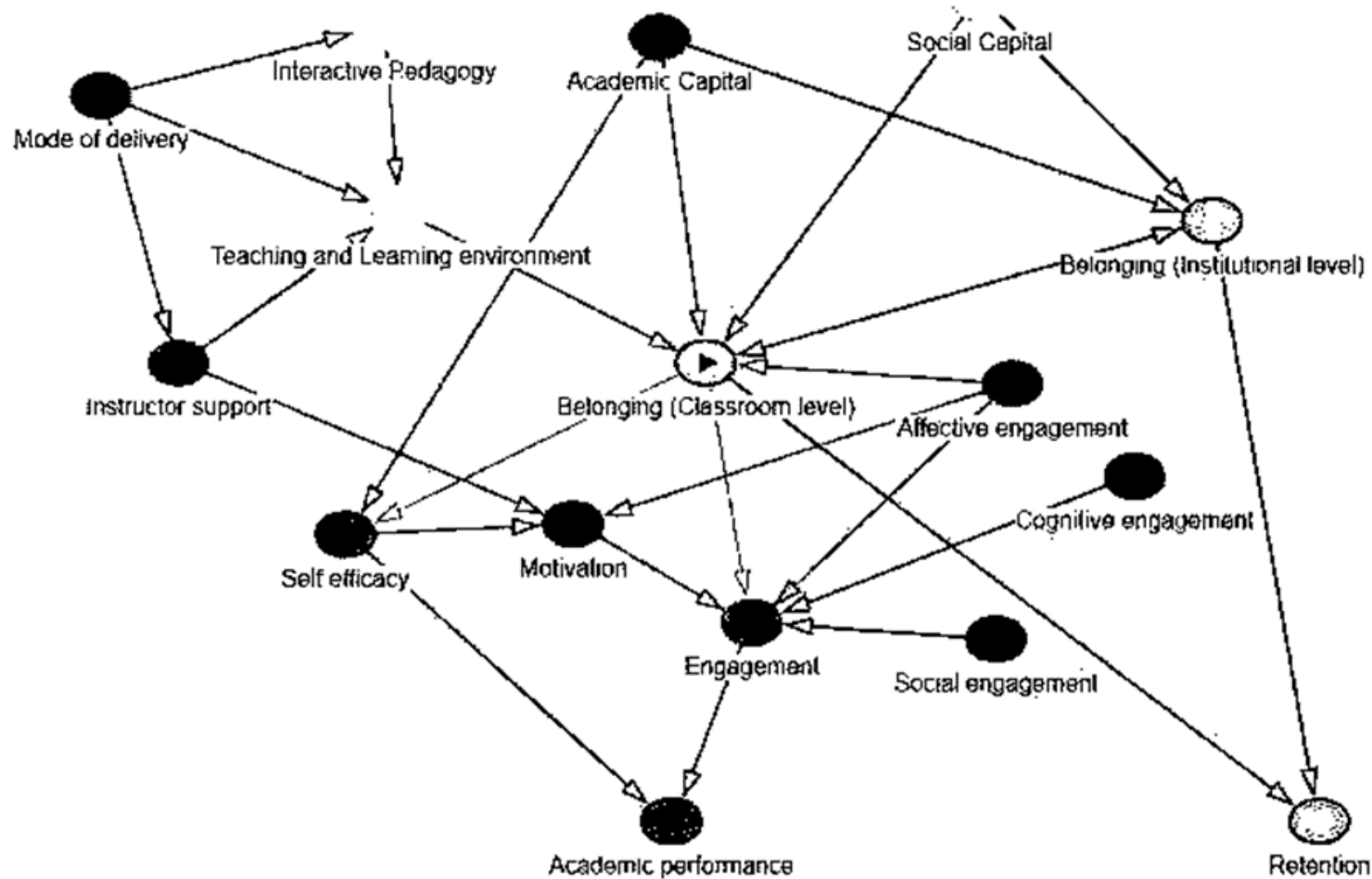
Summarising theoretical models of belonging diagrammatically

- We are in the process of analysing the literature on the **drivers of belonging (causal claims)** rendered as a visual model
(*doctoral researcher Ram Ramanathan*)
- This is in fact a Directed Acyclic Graph (DAG) which is one way to **formalize educational theory for modelling** in Learning Analytics
(*doctoral researcher Ben Hicks*)
- Minimally, this is a form of “**visual lit review**” — but conceivably the first step towards a theoretically-grounded ‘**Belonging Quotient**’?

Summarising theoretical models of belonging diagrammatically – Directed Acyclic Graphs (DAGs): 2 perspectives



Summarising theoretical models of belonging diagrammatically – Directed Acyclic Graphs (DAGs): 2 perspectives





Next steps?

- Do you want to belong?...
...to a **Belonging Analytics network**?!
Add your contact details to
<https://bit.ly/utsbelong>
- What would you find most useful in such a network?

Belonging Analytics Network

Thank you for your participation in the ALAS122 interactive session "Towards Learning Analytics & Belonging"! As a follow up, we would like to invite you to be part of this network in order to explore further ideas and collaboration. Please fill in this form if you are interested in being a part of this network. Thank you!


simon.buckinghamshum@uts.edu.au (not shared)


[Switch accounts](#)

***Required**

First name *

Last name *

Institution *

Email address *

What would you find most useful in this network?

Submit
Clear form



In closing...

**Take a look at the card you
picked at the start...**

**Would you still have picked
this card, or is there another
one that speaks to you more
strongly now?**

Thank You!

(PS: please leave the cards but you can snap photos of them!)