



Keynote address: Centre for Education and Learning,
Leiden-Delft-Erasmus Universities, 7th Dec. 2022

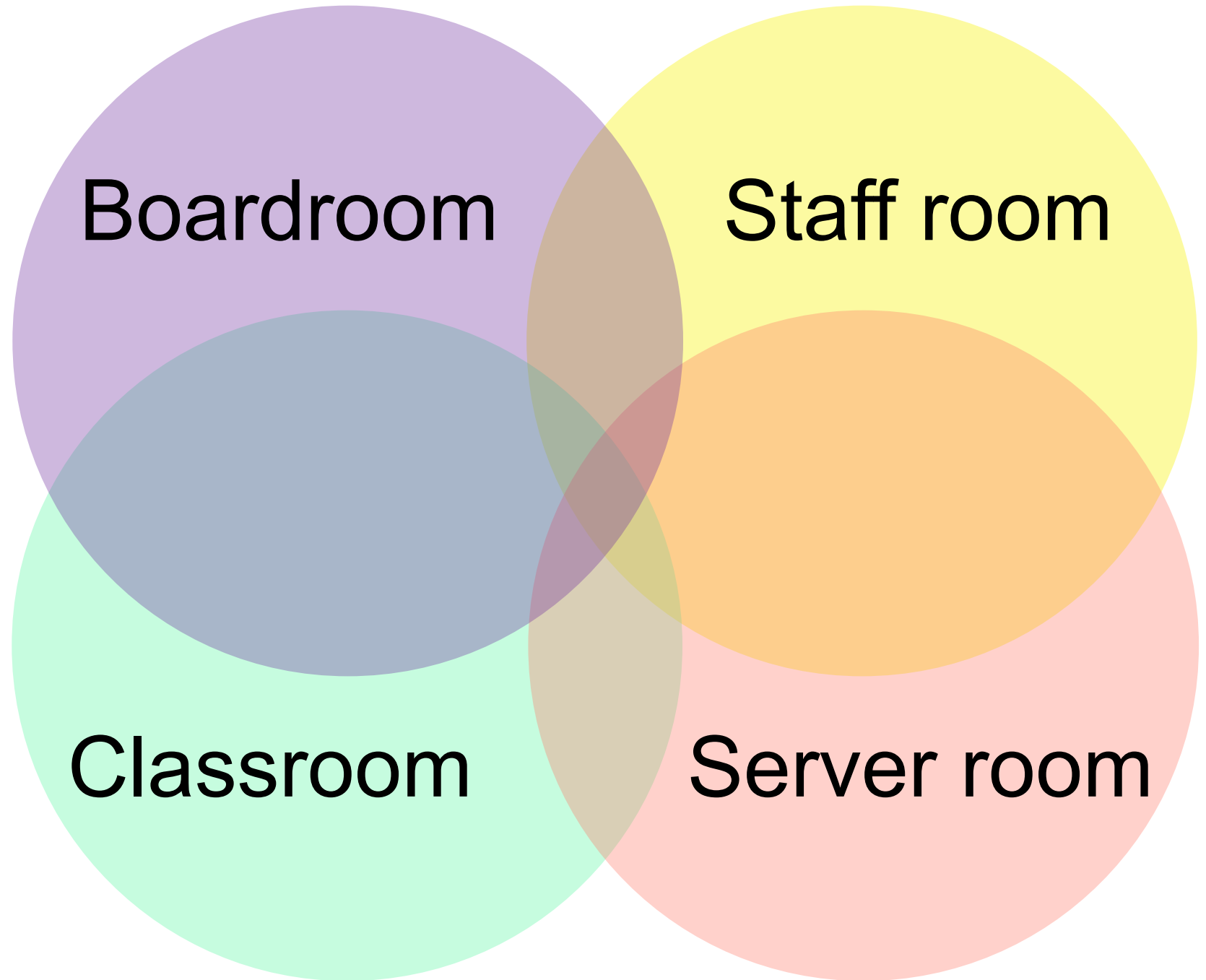
Cultivating a Learning Analytics Culture at UTS

Boardroom, Staff Room, Server Room, Classroom

Simon Buckingham Shum
Professor of Learning Informatics
University of Technology Sydney
Director, Connected Intelligence Centre
<https://cic.uts.edu.au> • @sbuckshum

**“LA culture”
comes from trust**

**Trust comes from
respectful
conversations in 4
different ‘rooms’...**



“Learning Analytics”

?

Beyond data dashboards

An LA dashboard
≠ agency

→ LA Literacy

Simply graphing data
≠ sensemaking

→ Data Storytelling

Time-consuming LA
≠ educator benefit

→ Automated
Feedback

“Learning Analytics”

...a meaningless term to most academics

We now use **language** around **differentiation**,
belonging and **feedback**

Automated Personalised Feedback

Automated Personalised Feedback – examples

Dispositional Learning Analytics: Personalised feedback with a Learning Power profile

Validated survey as part of an enquiry project

wild

~ Cat test journey

Purpose Plan Do Review

Learning Power Survey

STEP 1 / 13

No, not at all like me Not very much like me A little like me Quite like me Quite a lot like me Yes, very much like me

I like to find my own ways of doing things

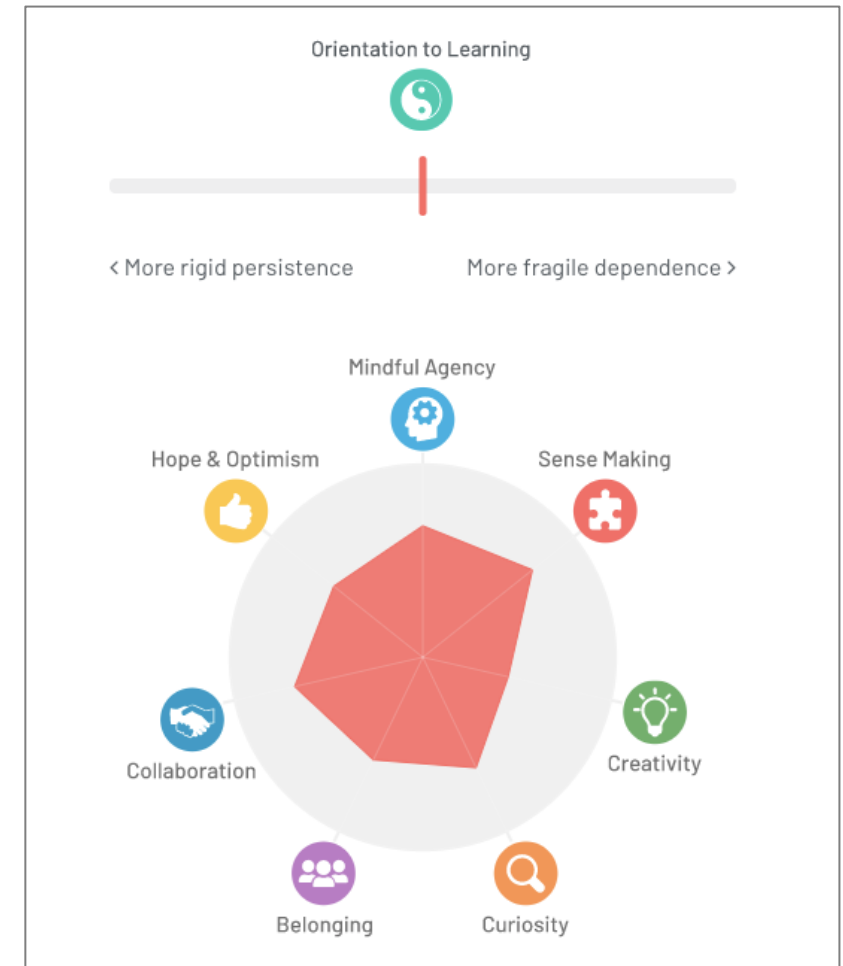
I have at least one person close to me who I can turn to for guidance in my learning

I like to try out new learning in different ways

I make connections between what I am learning and what I have



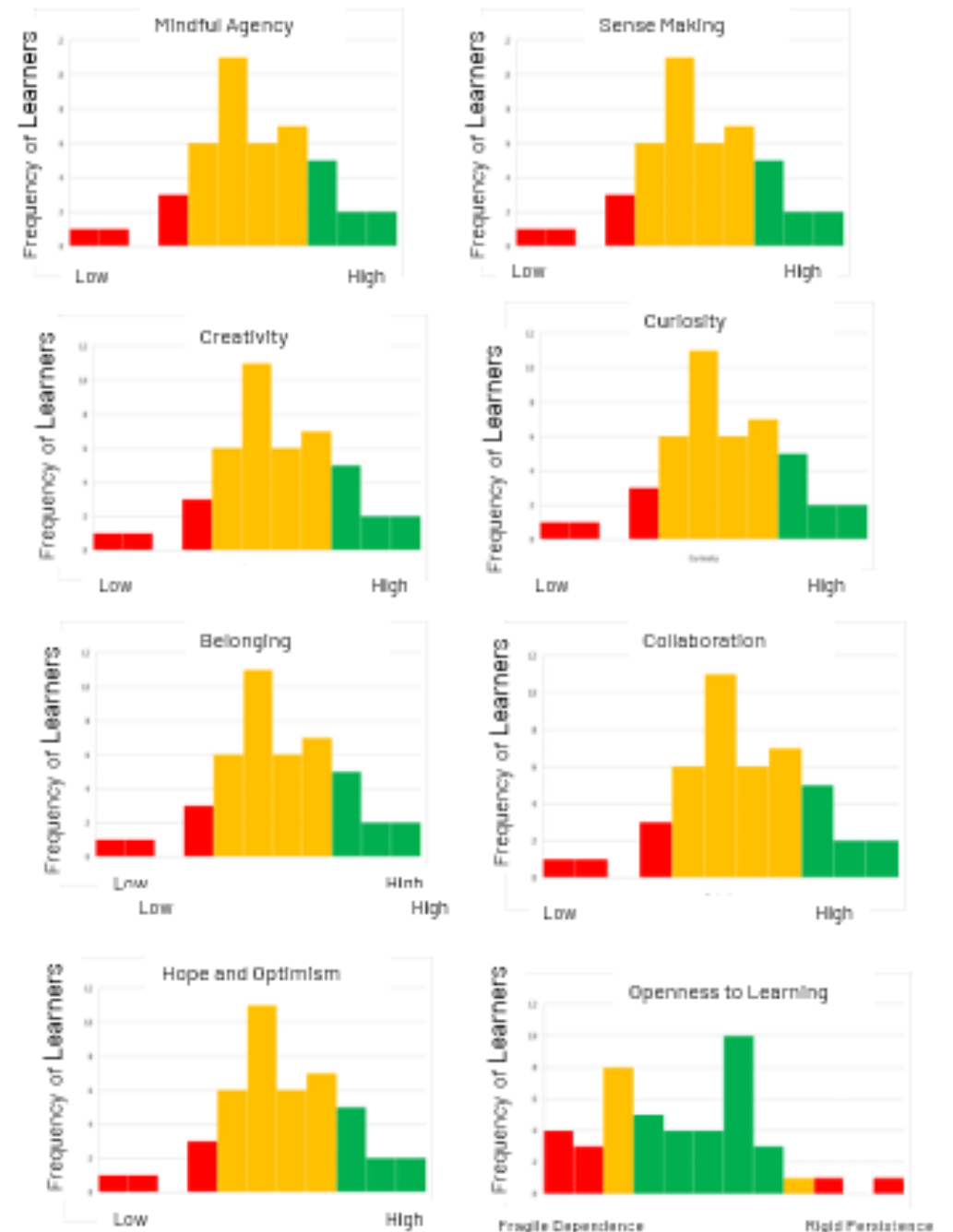
A language for learning dispositions



Cohort analytics: overview for subject coordinator

Distribution for each
dimension across the cohort

A heads-up on how the
cohort sees themselves...



Amplifying teacher presence via personalised feedback using OnTask

Repository of student data
(e.g. online activity; attendance;
survey responses...)



Message editor
to differentiate feedback
based on the student data



Delivery system
to preview and send
email feedback

Student ID	Name	Activity	Attendance	Survey	Feedback
10101	John Doe	High	95%	Positive	Good progress
10102	Jane Smith	Medium	80%	Neutral	Needs more practice
10103	Mike Johnson	Low	60%	Negative	Struggling with concepts

Workflow Actions Table Misc

Subject demo

Week 3 feedback

Personalized Text

Filter: Learners (Empty)

Text Conditions (2)

Dear {CrownName}!

We are now at Week 3 of the semester. This is just a friendly check-in with you regarding your progress with the activities in the past week. If {Week 3 login < 10%} your online activity seems rather low, are you catching up with your learning regularly enough? Research has established that regular, consistent study is best so that you don't fall behind. Schedule a regular time each week to review what you've learned over the previous week. This study habit will be useful for your other courses as well. {if endif} If {Week 3 login >= 10%}, it looks like you've been actively accessing the Canvas site, which is a good start! Do you have any questions about what you're learning so far? I encourage you to take note of concepts you're grappling with, and prepare to raise them in the discussion forums or in class. {if endif}!

Next week we'll be starting on a new topic: Behavioral neuroscience. Have a look at the video at <https://www.youtube.com/watch?v=r1CZ-0u5r00> before coming to class so that you won't get lost in the discussion!

See you in class!

Cheers,

Preview Save Close

Subject demo

Send emails for action "Week 3 feedback"

01 emails will be sent.

Email subject*

Column to use for target email address*

Comma separated list of CC emails

Comma separated list of BCC emails

Check/exclude email addresses before sending?

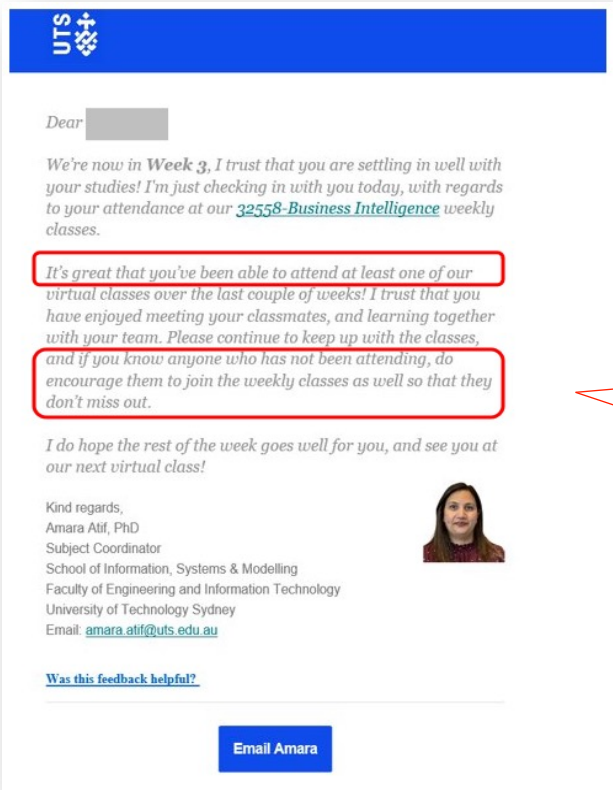
Send you a summary message?

Track email reading in an extra column?

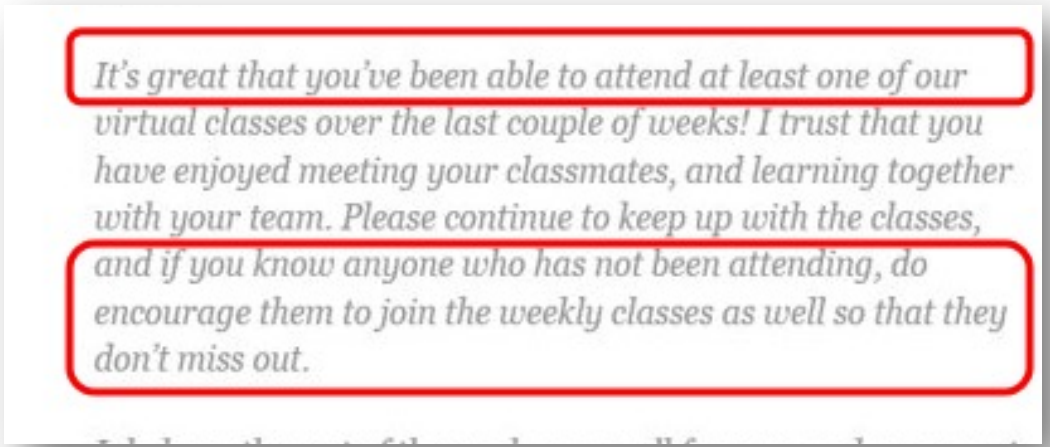
Download a snapshot of the workflow?
A zip file useful to review the emails sent.

Cancel Preview Next

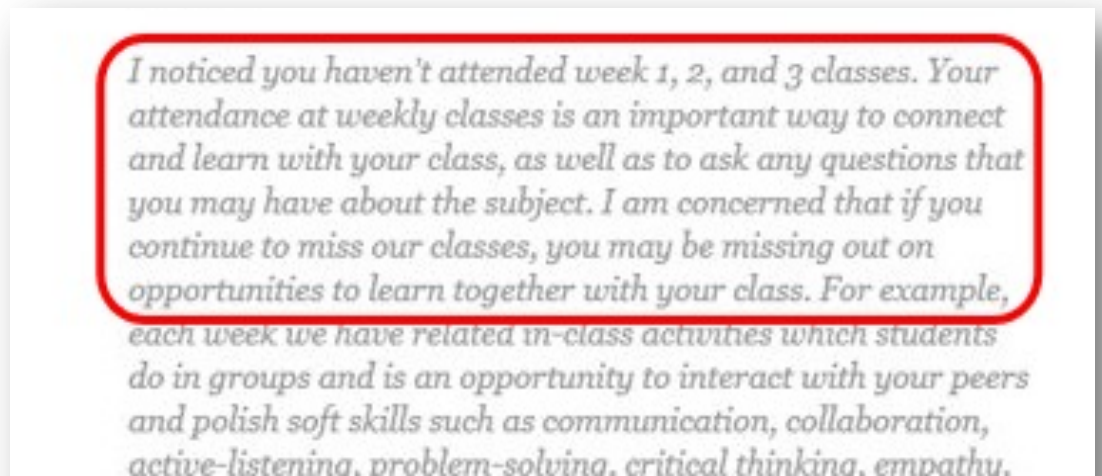
Activity-Based Conditional (ABC) Messaging: Tailored feedback at scale



(a) Feedback message to **students who attended at least 1 class**



(b) Feedback message to **students who missed all classes weeks 1-3**



Lim, L.-A., Atif, A., & Farmer, I. (2022). 'Made good connections': Amplifying teacher presence and belonging at scale through learning design and personalised feedback. *Proceedings ASCILITE 2022: 39th International Conference on Innovation, Practice and Research in the Use of Educational Technologies in Tertiary Education*, Sydney, 4-7 Dec. 2022: e22055, pp.1-10. <https://doi.org/10.14742/apubs.2022.55>

Writing Analytics: 24/7 personalised feedback on drafts

Genre: research abstract

Analytical Report Feedback Resources

[Show move details](#)

- Background / Context move
- Purpose of the Paper / Present Research move
- Research Problem / Issues / Gap in the literature move
- Results / Findings move

It is now widely accepted that timely, actionable feedback is essential for effective learning. In response to this, data science is now impacting the education sector, with a growing number of commercial products and research prototypes providing “learning dashboards”, aiming to provide real time progress indicators. From a human-centred computing perspective, the end-user’s interpretation of these visualisations is a critical challenge to design for, with empirical evidence already showing that ‘usable’ visualisations are not necessarily effective from a learning perspective. Since an educator’s interpretation of visualised data is essentially the construction of a narrative about student progress, we draw on the growing body of work on Data Storytelling (DS) as the inspiration for a set of enhancements that could be applied to data visualisations to improve their communicative power. We present a pilot study that explores the effectiveness of these DS elements based on educators’ responses to paper prototypes.

Genre: reflective writing

Reflective Report Feedback Resources

- Initial thoughts and feelings about a significant experience.
- The challenge of new surprising or unfamiliar ideas, problems or learning experiences.
- Deeper reflection, personally applied.**
- ▶ How new knowledge can lead to a change
- Expressions indicating belief, learning, or knowledge.
- Expressions indicating self critique
- Words associated with strong feelings
- ⚡ Sentence too long, might disengage the reader. Try breaking it into smaller sentences

outcomes for the patient. ▶ **Thus, this experience taught me that in future, I must take a patient-centred approach. I must spend time addressing the patients concerns and demonstrate excellent communication with them so they can fully understand their clinical picture and history.** This relates to Domain 2: Communication and Collaboration, Standard 4: Apply Interpersonal Communication Skills to Address Problems, which is a standard in the National Competency Standards Framework for Pharmacists in Australia (2016). The incident has taught me to use a whole range of communication techniques when counselling a patient. It gave me the opportunity to practice this sort of behaviour in my subsequent weeks of clinical placement. ● **It has strongly encouraged me to shift my perspective to one that focuses more on patient-centred care.** ■ I personally think that this is crucial in ensuring that a patient’s health objectives are met. This standard I have obtained is important for any practising pharmacist.

Skills Analytics: Tailored feedback on learning/career path choices

Upload your CV, and build your skills profile. Then...

The screenshot shows the 'TRACK Explorer' interface with the header 'Data. AI. Machine Learning. Change. Innovation.' The main heading is 'Select capability interests'. Below it, a paragraph explains that a capability is an area of specialisation or a specific skill set. A list of capabilities is shown, with 'Data Engineering' selected and highlighted in blue.



The screenshot shows the 'Data Engineering' detail page. It includes a description of data engineering, a question 'Interested in this capability?' with a subtext 'If you would like to include this capability to personalise course recommendations', and a blue 'I'M INTERESTED' button. Below this is a section for 'Capability skills' with a note that skills in the user's profile are blue. A grid of skill tags is displayed, including AWS Redshift, Amazon Redshift, Apache Hadoop, Apache Kafka, Conceptual Data Models, Data Acquisition, Data Architecture, Data Lakes / Reservoirs, Data Mapping, Data Modeling, Data Pre, Data Warehouse Development, Database Schemas, Enterprise Data, MapReduce, Scalability Design, Social Media API, and Talend ETL.



The screenshot shows the 'Select UTS Open courses' screen. It features the header 'TRACK Explorer' and a sub-header 'RECOMMENDED COURSES'. A list of course titles is displayed, including Data Engineering Foundations, Ethical AI for Good Business, Advanced Data Visualisation, Applied Data Analytics for Cybersecurity, Data Analytics Foundations, Advanced Data Science for Innovation, and What Does Facebook Know about You?

Skills Analytics:

Tailored feedback on learning/career path choices

3 Explore training options

It is time to start exploring the UTS curriculum to find a path of study that will help you to pick up the skills that you need to excel at the jobs you are interested in.



Best match courses

- Journey through Data** ✓
Engage with data systematically and strategically and learn how to tell a data story.
- Data Literacy: Telling Data Stories +
Learn how to craft a compelling data story using statistical analysis and data visualisation. [8 ...
- Applied Data Visualisation +
Take your data visualisation to the next level and focus on data-driven storytelling. [10 wks, av...
- Advanced Data Science for Innovation +
Take the next step in solving complex business problems with innovative solutions using adv...
- Applied Data Analytics +
Experience this highly application-focused, deployment-driven capstone to our data analytic...
- Data Literacy: Data Informed Decision Making +
Level up your decision making with practical data science tools and techniques. [8 wks, avg 6...
- Ethical AI for Good Business +
Set the ethical technology agenda for your organisation grounded in AI literacy, knowledge a...
- Advanced Data Analytics** ✓
Build your foundational data background to develop a skillset to run data mining and analysi...

Selected capabilities (1) Update

Updating selected capabilities will change the best match order.

Data Literacy and Thinking Scientifically about Data

Skills you have Skills you'll gain

Hide capability skills ^

Skills you have

- Data Munging ✓
- Decision Making ✓
- Microsoft Excel ✓

Skills from the selected courses

- Data Munging ✓
- Decision Making ✓
- Microsoft Excel ✓
- Columnar Databases
- Critical Thinking
- Framing
- Information gathering
- Problem Identification
- Problem Solving
- Spreadsheets
- Troubleshooting

Skills not covered by selected training

- Computer Literacy
- Correlation Analysis
- Creative Problem Solving
- Design of experiments (DOE)
- Experimental Design
- Independent Thinking
- Research
- Risk Modeling
- Social Data
- Social Media

Boardroom

UTS strategic conversation started in 2011



Envisioning “the Data Intensive University”

DIU UTS-wide Forum

Connected Intelligence Strategy

**Privacy & Ethics Forum
Plans for a Masters Degree**

**Masters Degree Launches
Analytics Pilots in Faculties**

**Recruit PhDs & Postdocs
First Pilot Evaluation Data**

Connected Intelligence Working Party

UTS-wide consultations and interviews

**Director Appointed
Launch of the Centre**

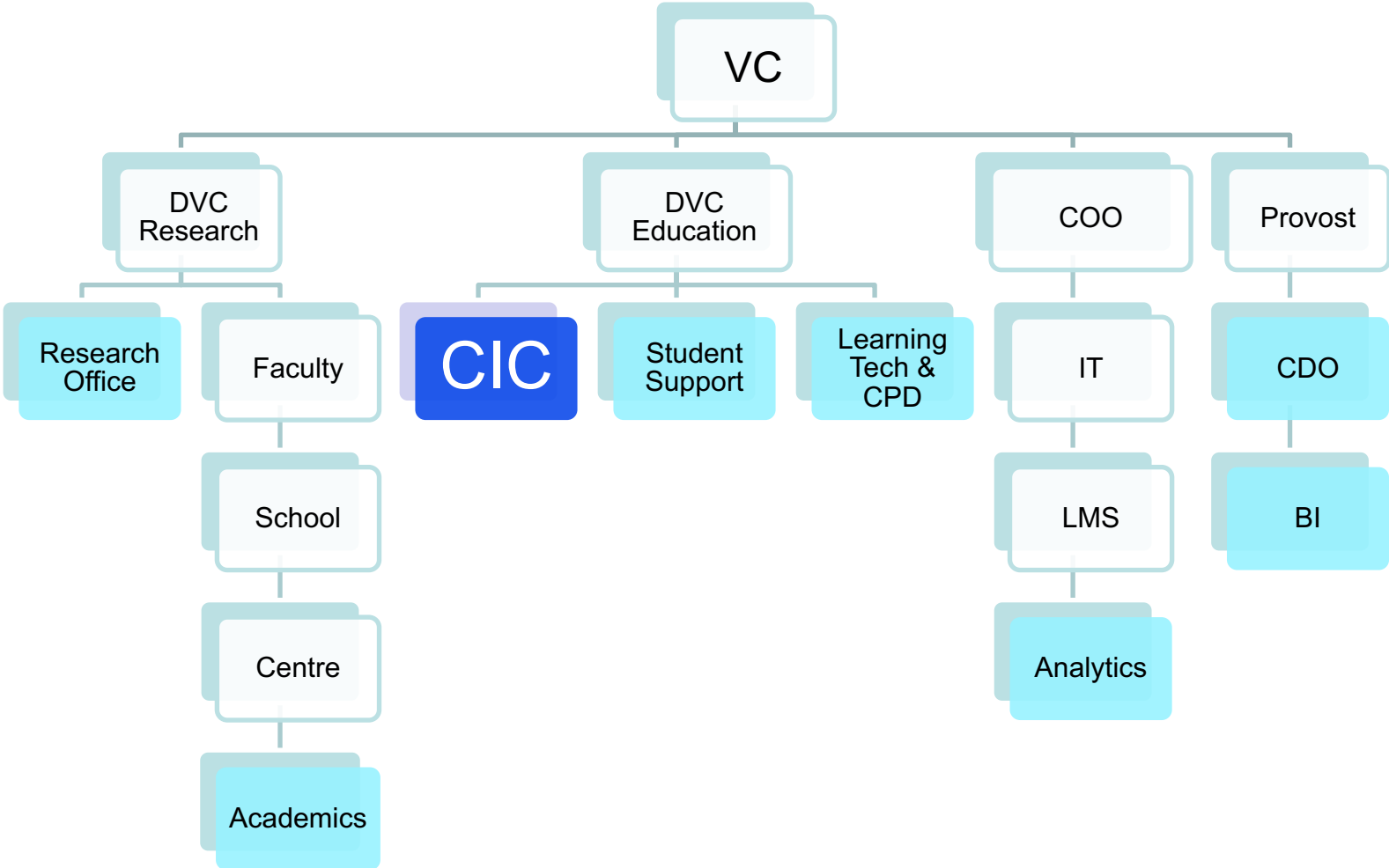
**UTS-wide engagement
Collaboration Proposals Invited & Projects Initiated**

Growing number of Learning Analytics pilots

**Initiate internal Data Science consulting
From pilots to mainstream release of LA tools**

CIC's organisational positioning: hybrid research + service

CIC works closely with



“Innovating for sustainable impact”

Architecting *for* Learning Analytics: Innovating for Sustainable Impact

Simon J. Buckingham Shum and Timothy A. McKay



Learning analytics is an academic field that has been taking shape under that banner since around 2010, and it has featured regularly in reports on learning technology futures over the years. It sits at the convergence of learning (learning technology, educational research, learning/assessment sciences), analytics (statistics, visualization, computer/data sciences, artificial intelligence), and human-computer interaction (participatory design, behavioral science, sociotechnical systems design, usability evaluation). In light of the significant investments that some colleges and universities are making in their analytics infrastructures, how can an institution architect itself to innovate at this disciplinary intersection—to innovate pedagogically and analytically in order to tackle substantial, strategically important teaching and learning challenges? In short, how can an institution innovate for sustainable impact?

A comparison of the drivers behind the creation of 2 university analytics innovation centres, and the org structures that enable impact:

University of Technology Sydney
Connected Intelligence Centre

University of Michigan
Digital Innovation Greenhouse

EDUCAUSE Review

<https://er.educause.edu/articles/2018/3/architecting-for-learning-analytics-innovating-for-sustainable-impact>

Aligning our LA with *UTS 2027* strategy



Lifetime of Learning



Connected Research:
enhancing our pathways to impact



Our Distinctive Identity

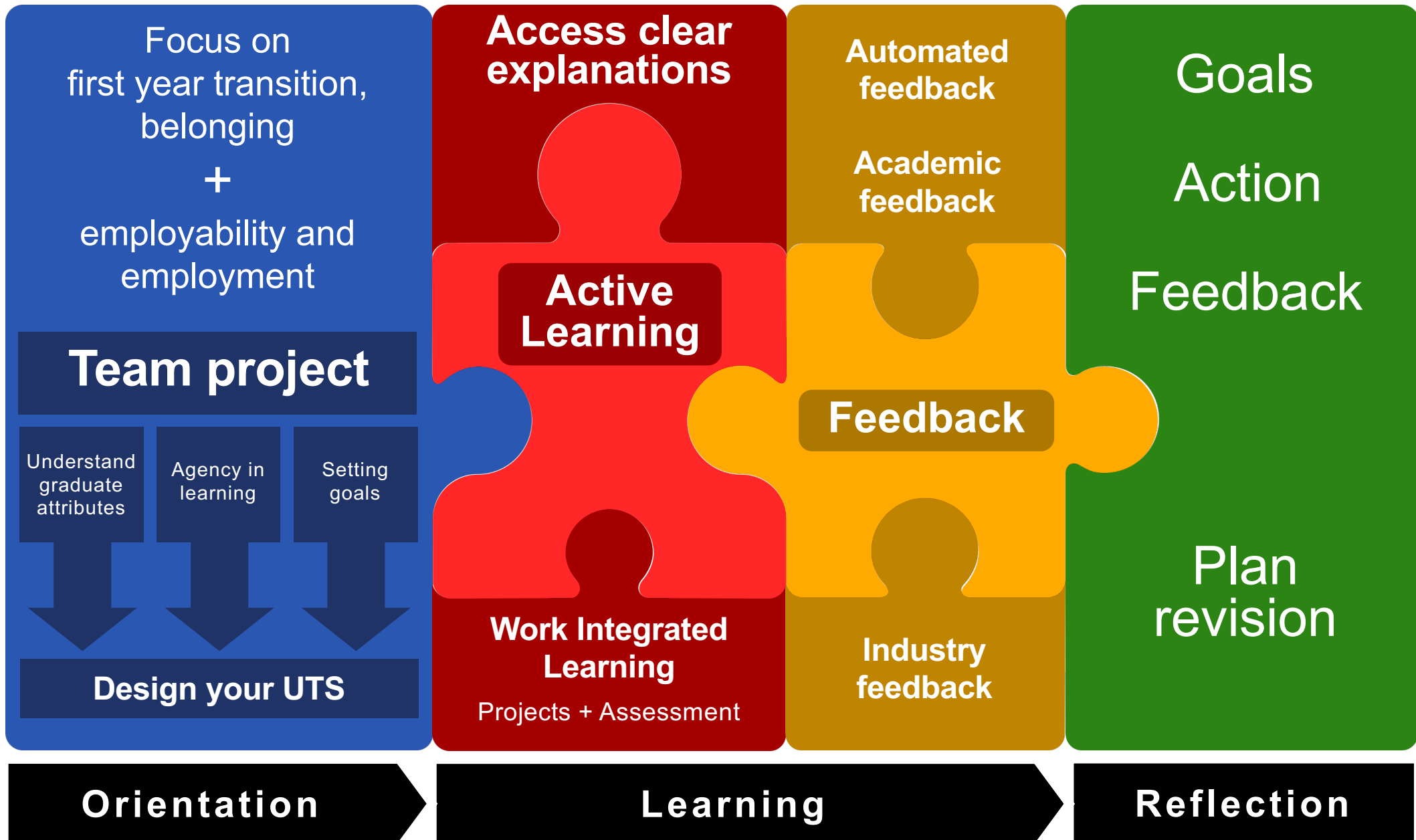


Sustainable Partnerships



Working Together

Aligning LA with “Learning.Futures” learning and teaching strategy



Boardroom briefings: data-informed claims

(From the 2014-17 business case to move from Strategic Pilot to BAU)

ALL faculties

have piloted at least one CIC tool

4918 students

used a CIC analytics tool

133 industry

partners attended CIC events

147 staff

attended CIC events

3000 reads

of our *AI in Education*
Conversation article in first week

150 msecs

to analyse a page of student writing

29 government

partners attended CIC events

30 papers

peer reviewed in archival
journals and conferences 2015-17

231 staff

trained in/piloted a CIC analytics tool

Boardroom briefings: data-informed claims

“CIC hired a data scientist who works as an internal consultant with UTS teams from any part of the university, providing rapid analyses of their data. This has proven extremely valuable to UTS clients...”

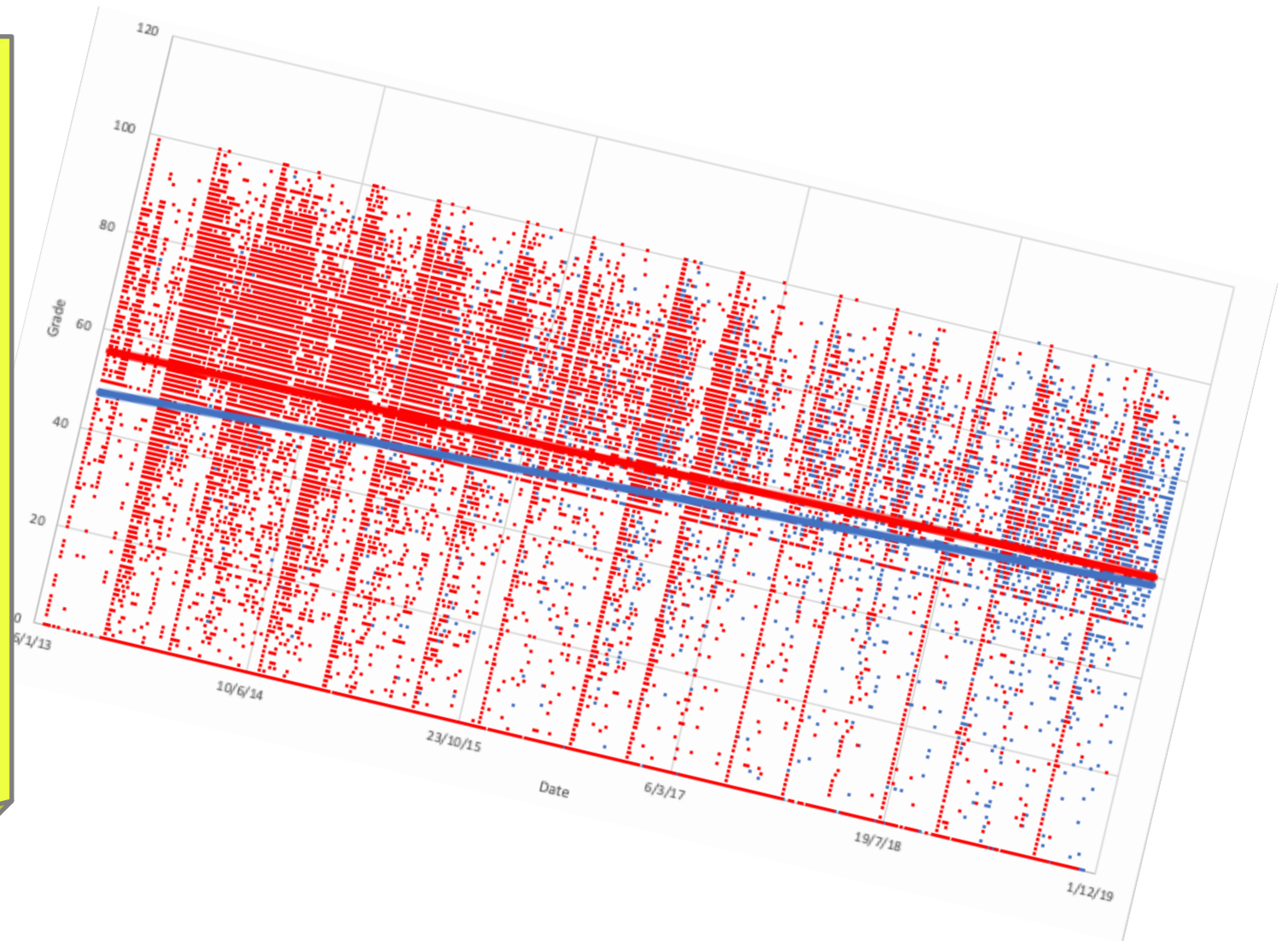


Boardroom briefings: data-informed claims

Student language support team: Are we making a difference to student grades?

“Compared to a **control group** of students, students who **attended a student support service** improved their grades significantly, converging on the control group.

From 2013 – 2019 we closed this gap.”



Do students who spend a year abroad benefit, compared to those who stay in Sydney?

“CIC’s Data Scientist developed a statistical method to **reliably compare students who spent a year overseas with comparable students who did not.**

We have been able to use this evidence to **speak concretely about our value** at Open Days and as part of the retention strategy for the degree.

This was **well received at the highest levels of the university and was greatly appreciated by our partner faculties,** which were able to use the information specific to their students to amplify our message.”



Boardroom briefings: robust LA evidence base

“UTS is the world’s first university to provide students with instant formative feedback on reflective writing, with another version focusing on analytical, argumentative writing. Pilot studies with >1800 students provide evidence...”

■ **It is hard to believe that I started placement almost three months ago.** ● It has definitely been full of challenging experiences which have shaped my understanding of the role of a pharmacist. During my time at Chester Square Pharmacy I was able to observe different sides of pharmacy including pharmacist-patient interactions, retail, administration and the clinical aspects. To be honest my first thoughts going into placement were negative. I dreaded the idea of having to interact with patients as well as engaging with employees of the pharmacy. ● I felt that my lack of experience would cause an inconvenience and I would leave a negative impression in front of the pharmacist and other employees. However, I came to realise that my preceptor is an exceptional teacher and as the weeks progressed I began to look up to him as a mentor. ● Despite my lack of experience my preceptor ensured I observed different counselling situations and even encouraged me to engage directly with patients from the early days of placement. By allowing me to engage with patients I have been able to build on important communication skills. ▲ **My preceptor would also observe my weaknesses and bring them to my attention so that each week we would work on overcoming my weaknesses and turning them into strengths.**

Important aspects of reflective writing:

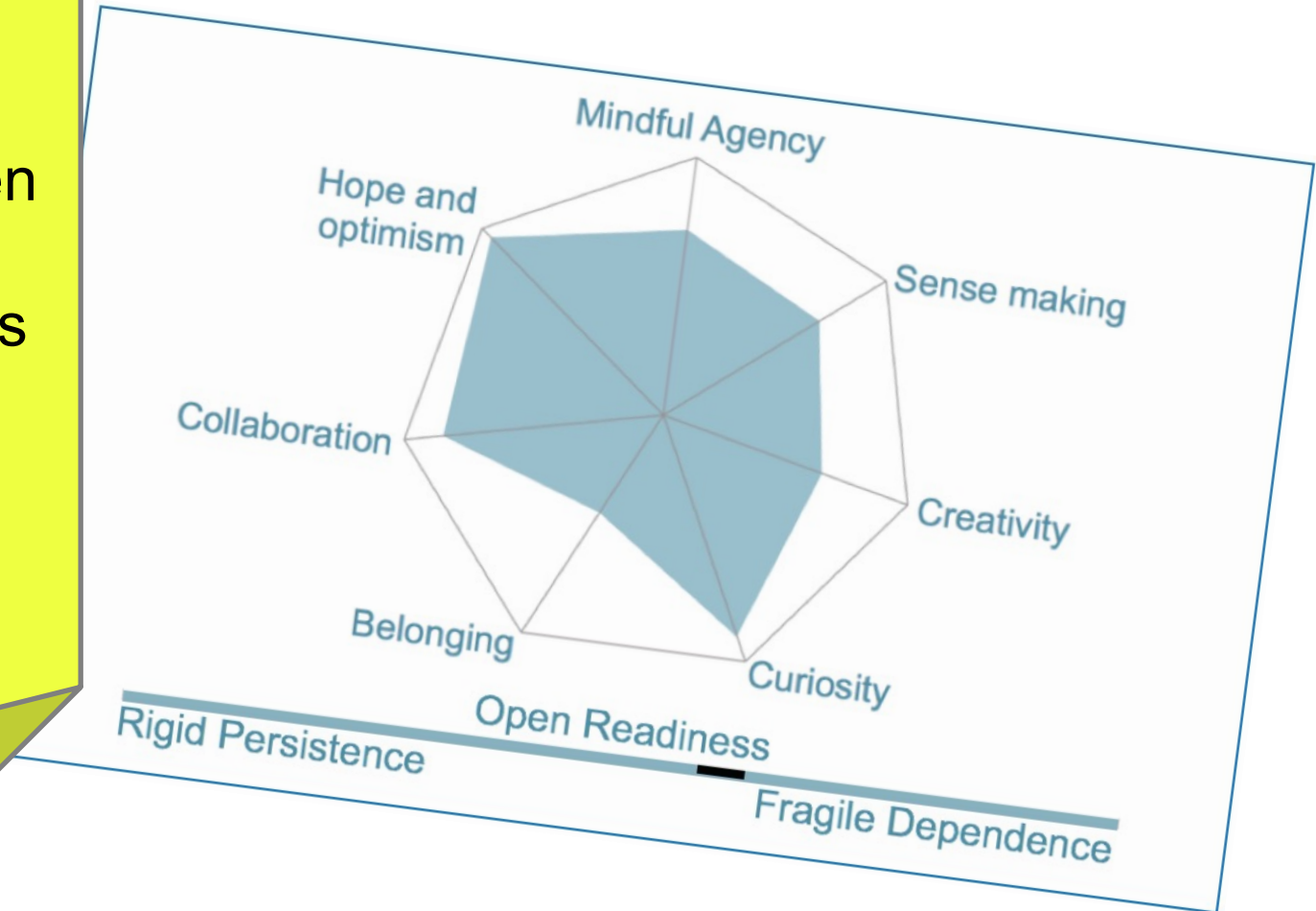
- Initial thoughts and feelings about a significant experience.
- The challenge of new surprising or unfamiliar ideas, problems or learning experiences.
- How new knowledge can lead to change
- Deeper reflection, personally applied.
- In: Expressions indicating belief, learning, or knowledge.
- ed: Expressions indicating self critique.
- ed: Words associated with strong feelings.

Guidance

patient. ● The pharmacist asked me to counsel the patient at his request because I was nervous and embarrassed to **ation as it involved her genitals and so I was unsure of** I told him how I felt about counselling the patient, however in my previous job as a call centre servicing advisor. I because the customers used Adult websites, which were **use it was a sensitive conversation.** I dealt with and then I read off a script, which helped ensure that the nique to overcome my fear of discussing sensitive y that was close to the dispensary yet away from other

Boardroom briefings: robust LA evidence base

“Pilots with almost 3000 students and 30 staff provide evidence that when students see their dispositions visualised, this can provoke valuable reflection on the qualities that build their resilient agency...”



Staff room

Walking in the shoes of academics

No trust, no LA deployments!

We are academics and educators ourselves, and know the pressures

We recognise the **reputational risk** educators are taking with any new EdTech

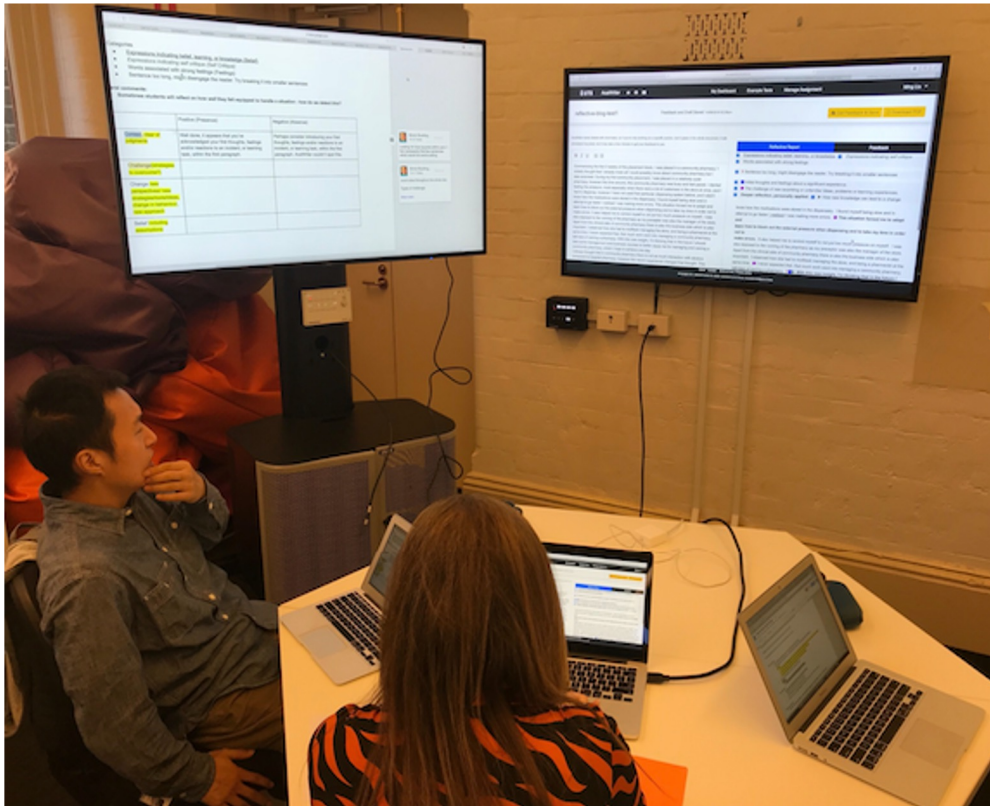
→ LA+LD support

Mutual learning and respect: it goes both ways

Done well, it's exhilarating!

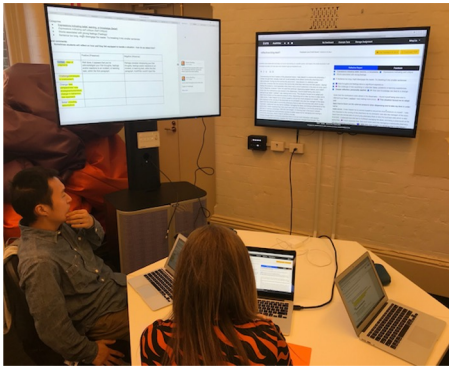
Co-designing writing analytics with academics

Writing the automated feedback messages



<http://heta.io/how-can-writing-analytics-researchers-rapidly-codesign-feedback-with-educators>

<https://www.heta.io/co-designing-automated-feedback-on-reflective-writing-with-the-teacher>



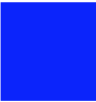


Google Doc to draft the feedback contingent on patterns:

presence/absence

sequencing

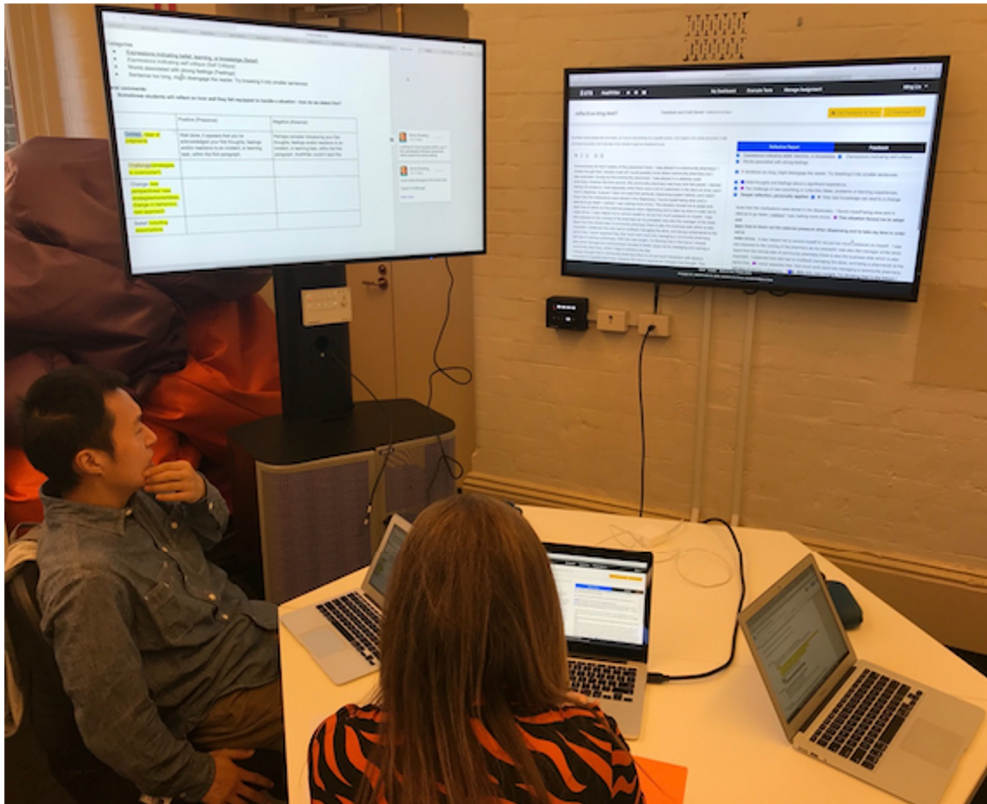
positioning

of sentence types

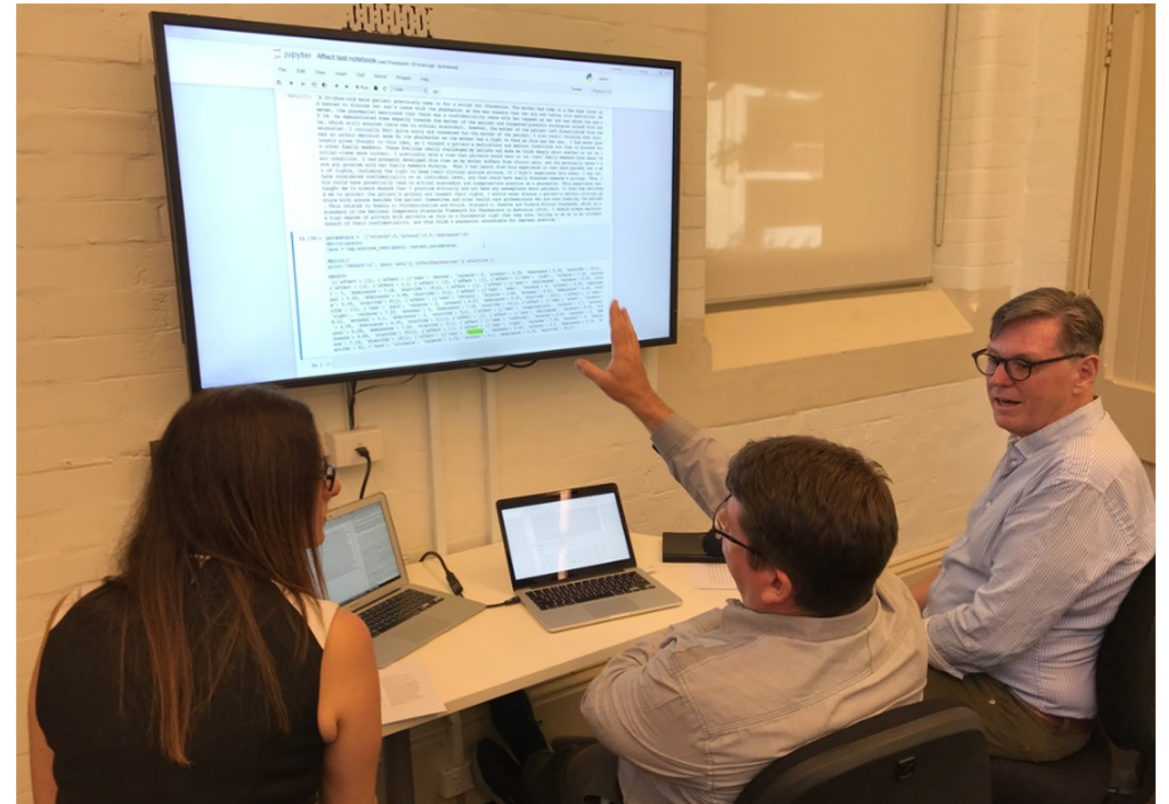
Highlighting Category	Positive feedback (Presence of highlighting)	Cautionary feedback (Absence of highlighting)
 <icon> Context, clear of judgments	Well done, it appears that you've acknowledged your first thoughts, feelings and/or reactions to an incident, or learning task, within the first paragraph.	Perhaps consider introducing your first thoughts, feelings and/or reactions to an incident, or learning task, within the first paragraph. AcaWriter couldn't spot this. (triangle without square) While it appears that you've reported on how you would change/prepare for the future, you don't seem to have described your thoughts, feelings and/or reactions to an incident, or learning task.
 <icon> Challenge(strategies to overcome?)	Well done, it appears that you've reported on something you found challenging. Do you think you could expand the detail related to the challenge? (double circles) Well done, it appears that you may have expanded the detail on the challenge you faced.	It appears that you haven't commented on anything you found challenging. If you did find something challenging, please expand on this. (triangle without preceding circle) While it appears that you've reported on how you would change/prepare for the future, you don't seem to have reported first on what you found challenging. Perhaps you've reflected only on the positive aspects in your report?
 <icon> Change new perspectives/ new	Well done, it appears that you've reflected on how you would change/prepare for the future. Is there anything further to say about these new	It appears that you haven't commented on what you would do differently should the same event occur in the future. Perhaps think about changes

Co-designing writing analytics with academics

Writing the automated feedback messages



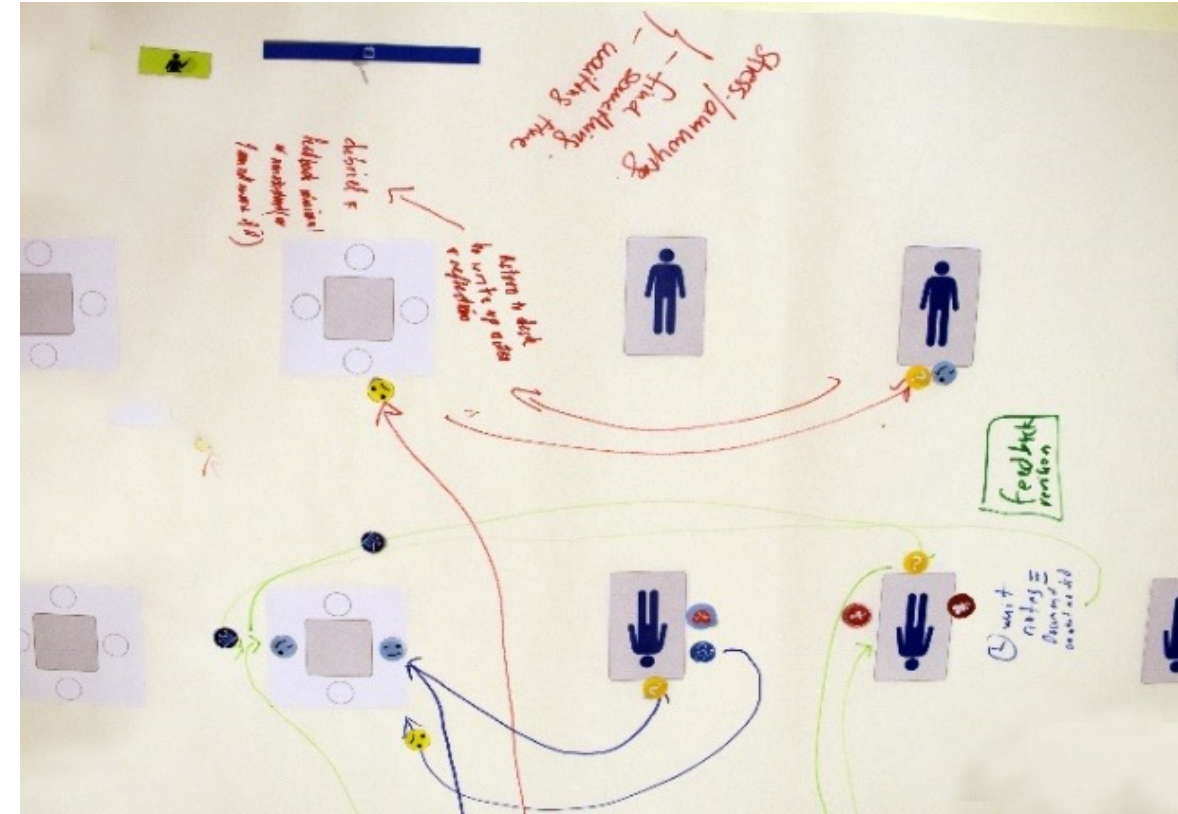
Testing classification thresholds for sentence types



<http://heta.io/how-can-writing-analytics-researchers-rapidly-codesign-feedback-with-educators>

<https://www.heta.io/co-designing-automated-feedback-on-reflective-writing-with-the-teacher>

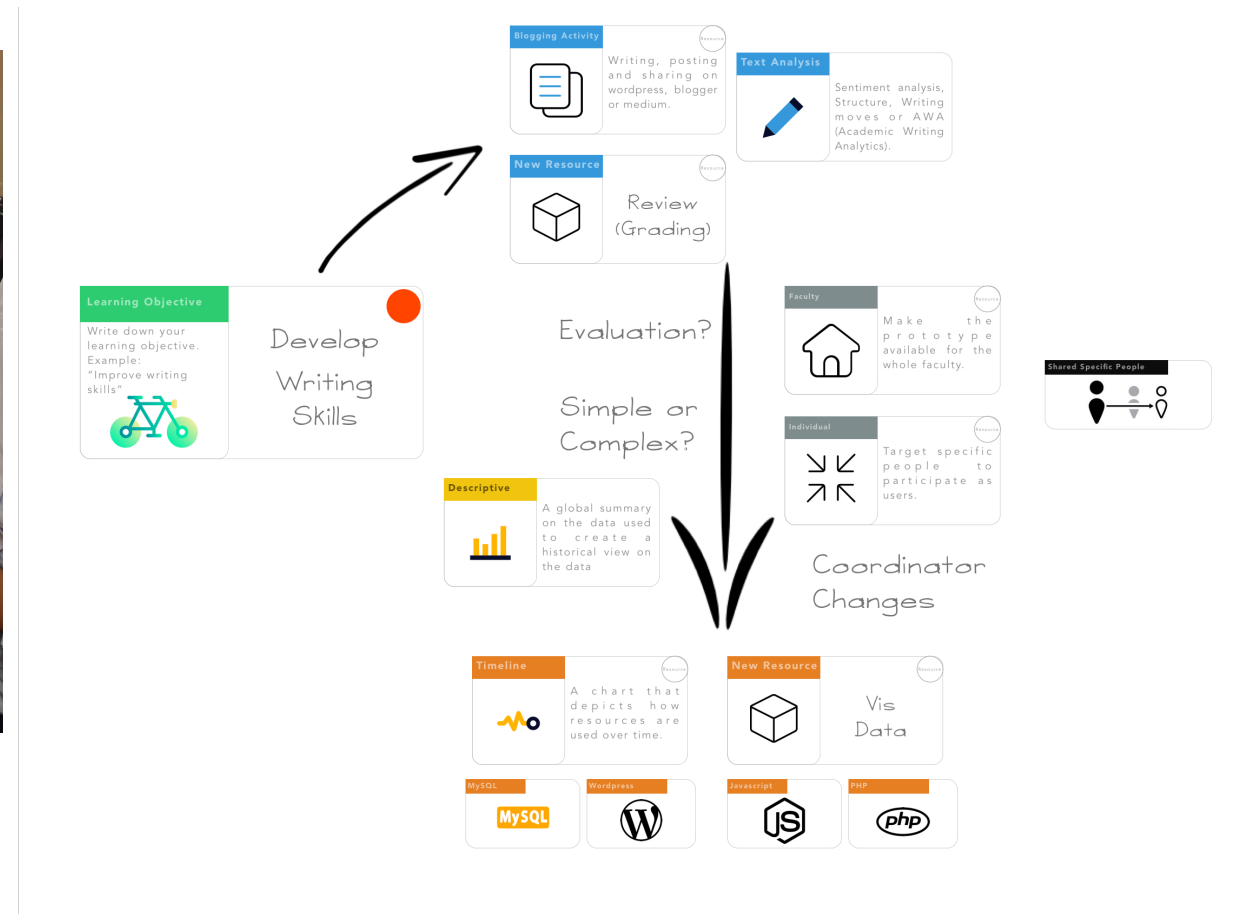
Participatory design with educators and students



Carlos G. Prieto-Alvarez, Roberto Martinez-Maldonado, & Anderson, T. (2018). Co-designing learning analytics tools with learners. In Jason M. Lodge, Jared Cooney Horvath, & L. Corrin (Eds.), *Learning analytics in the classroom: Translating learning analytics research for teachers* (Vol. 1). London: Routledge.

Participatory design with educators and students

The *LA-DECK* of cards to give a voice to stakeholders



Server room

From project to 'product'

Steps many LA prototypes never get to...

- secure user authentication (“single sign-on”) to provide a seamless and trusted user experience for students and staff
- auditing of the software to ensure compliance with preferred/required languages and architectural design
- security of code and APIs
- cloud hosting in approved infrastructures and location (student data stays in State/Australia)
- cloud scaling strategy to meet variable user demand;
- should a student report a problem there is an IT support workflow to handle the issue.



Classroom

(live f-f sessions
and online asynch.)

Academic professional development and support

Briefings for teaching teams

<https://lx.uts.edu.au/blog/2021/06/11/automated-feedback-looking-back-forward/>

Learn how to enrich your feedback ecosystem

David Yeats | 09 April 2021 | 0 comments

assessment automated feedback feedback learning technology online assessment tools

'Automated Feedback' has existed in various forms at UTS for quite some time: from online quizzes, to adaptive learning platforms, to conditional messaging. But...

- But what really is it?
- Is it really automated?
- How does it extend upon my existing feedback practices?
- What can we use it for?
- Where is it the most effective?

In this event series, we will look at the key categories of automated feedback and how you can use them to respond to a range of common and pressing issues associated with learning and teaching.

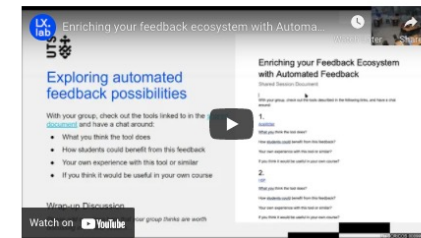
The first session provides an introduction to the key types of auto feedback technology. The subsequent three sessions each look at how these can address some key issues around teaching and learning in digital environments.

Learn from experience

Alongside experts from UTS CIC, you will also get to hear from UTS academics about how they have been using some of these tools. We aim to grow a community of interest around this topic to help [inform teaching and learning decisions](#) and LX.lab support strategies.

1. Enriching your feedback ecosystem with automated feedback

While feedback is often thought of first as the educator's response to a student's assignment submission, the process is suffused through a wide range of different moments throughout a subject experience. Perceiving feedback as an ecosystem shows the potential enriching properties of automated feedback tools.



Enriching your feedback ecosystem with automated feedback (Duration: 60 minutes)

- Public Google slide deck
- Public Google Jamboard (view only): The Character of Feedback

2. Building student belonging with automated feedback

Automated feedback can be shaped to provide an opportunity to acknowledge and respond to the diverse experiences of individual learners. You can use automated tools to create additional ecosystem touchpoints. Each of these fosters a greater feeling of connection for students. It's also an opportunity to respond to them as individuals and to generate academic literacy, scaffolding, feedback, affirmation and teacher expectations.



Automated Feedback in building student belonging in large classes (Duration: 120 minutes)

- Public Google slide deck
- Public Google Jamboard (view only): Challenges of Engagement and Belonging

3. Responding to variable student pace of learning

Feeding into the process using these auto tools leads to an awareness that can be responded to either automatically, manually or through designed change. An automated feedback system is collecting information about a student's situation. Ultimately the more meaningful information we can learn from students, the more we can help them succeed by responding to their pace and preferences.



How can AF tools flex to student needs to create the best experience for them? (Duration: 90 minutes)

- Public Google slide deck
- Public Google Jamboard (view only): Challenges of responding to variable student pace

4. Diagnosing your students' needs with automated feedback

Having the opportunity to see whether feedback was received as relevant provides the opportunity to configure practice when it would not otherwise be available. The traditional 'feedback loop' suggests that this is done by seeing the work produced by students. However, gaming responses using other more direct tools gives a space where less interpretation is needed. Students can tell you directly what they feel they need and you can make data-driven decisions.



Automated Feedback and diagnosing your students' needs (Duration: 90 minutes)

- Public Google slide deck
- Public Google Jamboard (view only): Challenges of diagnosing & getting visibility of your students' needs

Academics motivating writing analytics to their students

Civil Law essay writing



Philippa Ryan, Law academic

“[rhetorical moves] indicate to the reader the writer’s *attitude* to the text. Why do we worry about that? Because as lawyers, our job is to [...] argue that the way that we see the facts and the law favours a certain position or outcome.”

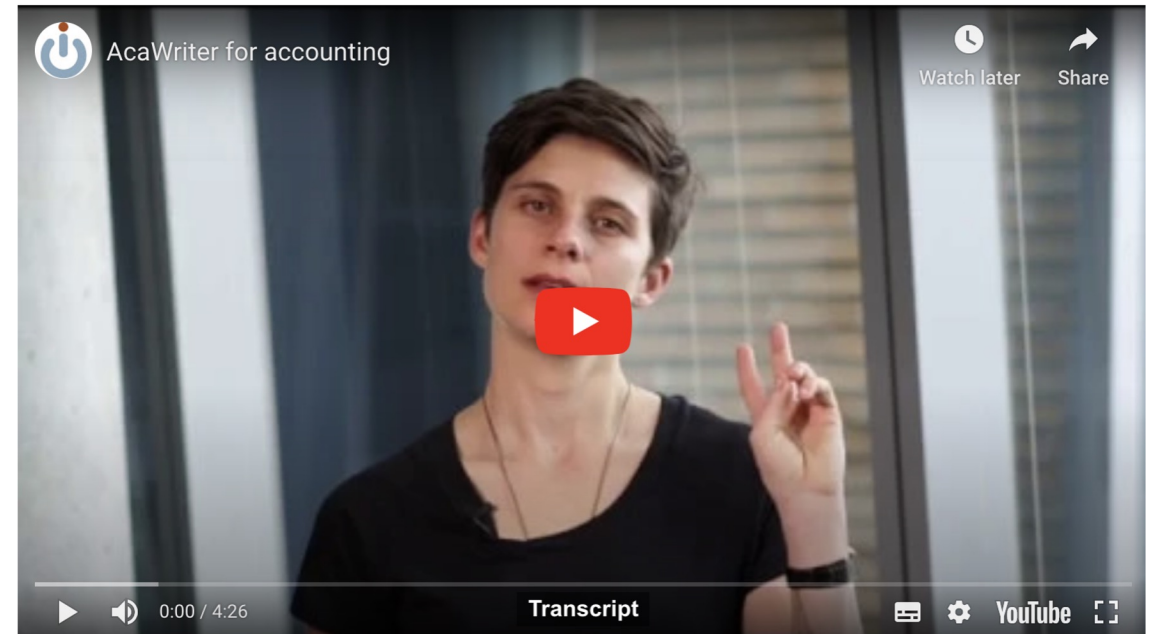
Academics explaining to their students why they need to care about their writing, and the relevance of AcaWriter

Civil Law essay writing



Philippa Ryan, Law academic

Accounting report writing



Nicole Sutton, Accounting academic

In class support

- Orientation portals and guides for students and staff
- Live or recorded video briefings
- Canvas modules to insert into course resources
- Cloud services ready (e.g. 400 simul. users in a class session)
- Learning design patterns for the effective use of the LA tool

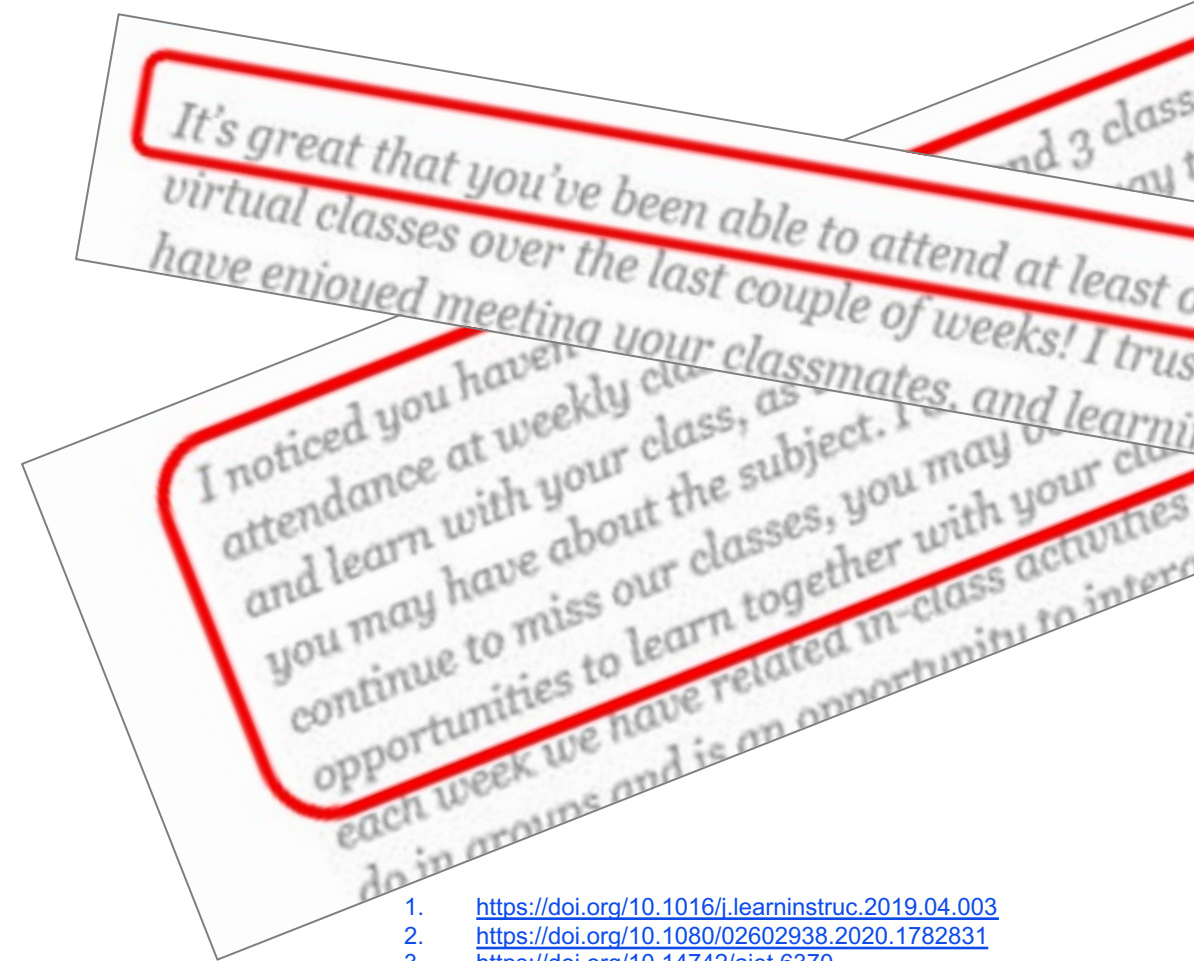


Classroom

(impact analysis)

What we know about the impact of OnTask on students

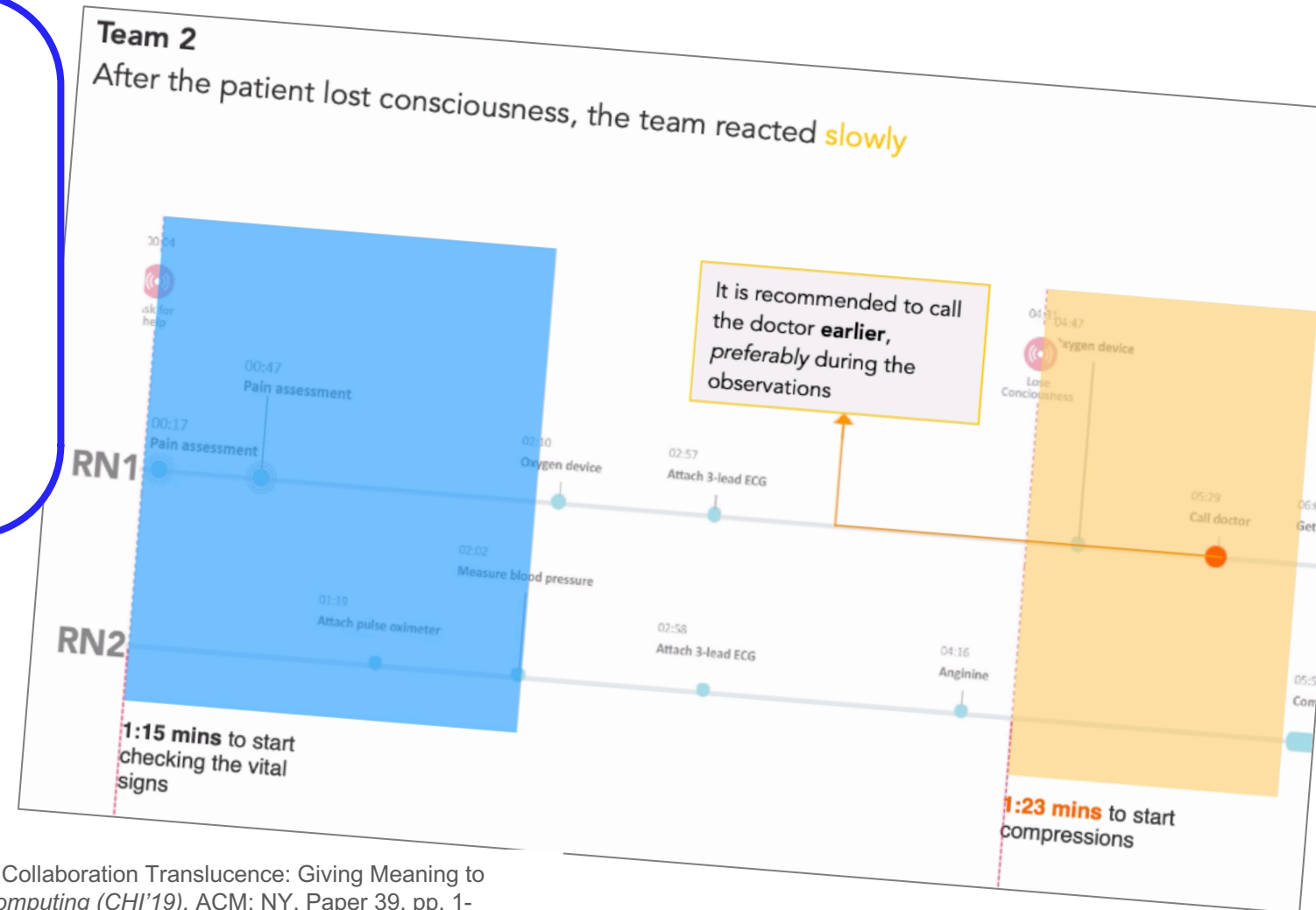
- Fostered more optimal **study habits** ^{1, 5}
- Enhanced **academic performance** ^{1, 6}
- Elicited a **'safe anxiety'** in some students ²
- Spurred student **motivation** ^{2, 3}
- Fostered greater **feelings of support** ^{2, 4, 7}
- Supported all phases of **self-regulated learning** ³
- Enhanced students' **course experience** ^{4, 6}



1. <https://doi.org/10.1016/j.learninstruc.2019.04.003>
2. <https://doi.org/10.1080/02602938.2020.1782831>
3. <https://doi.org/10.14742/ajet.6370>
4. <https://2019conference.ascilite.org/assets/papers/Paper-111.pdf>
5. <https://doi.org/10.1145/3303772.3303787>
6. <https://doi.org/10.1111/bjet.12592>
7. <https://doi.org/10.14742/apubs.2022.55>

Student reaction to automated feedback on teamwork

"This tool helped me have quantitative data to reflect on.
I can actively look back and see my exact actions, not just other perceptions of it"



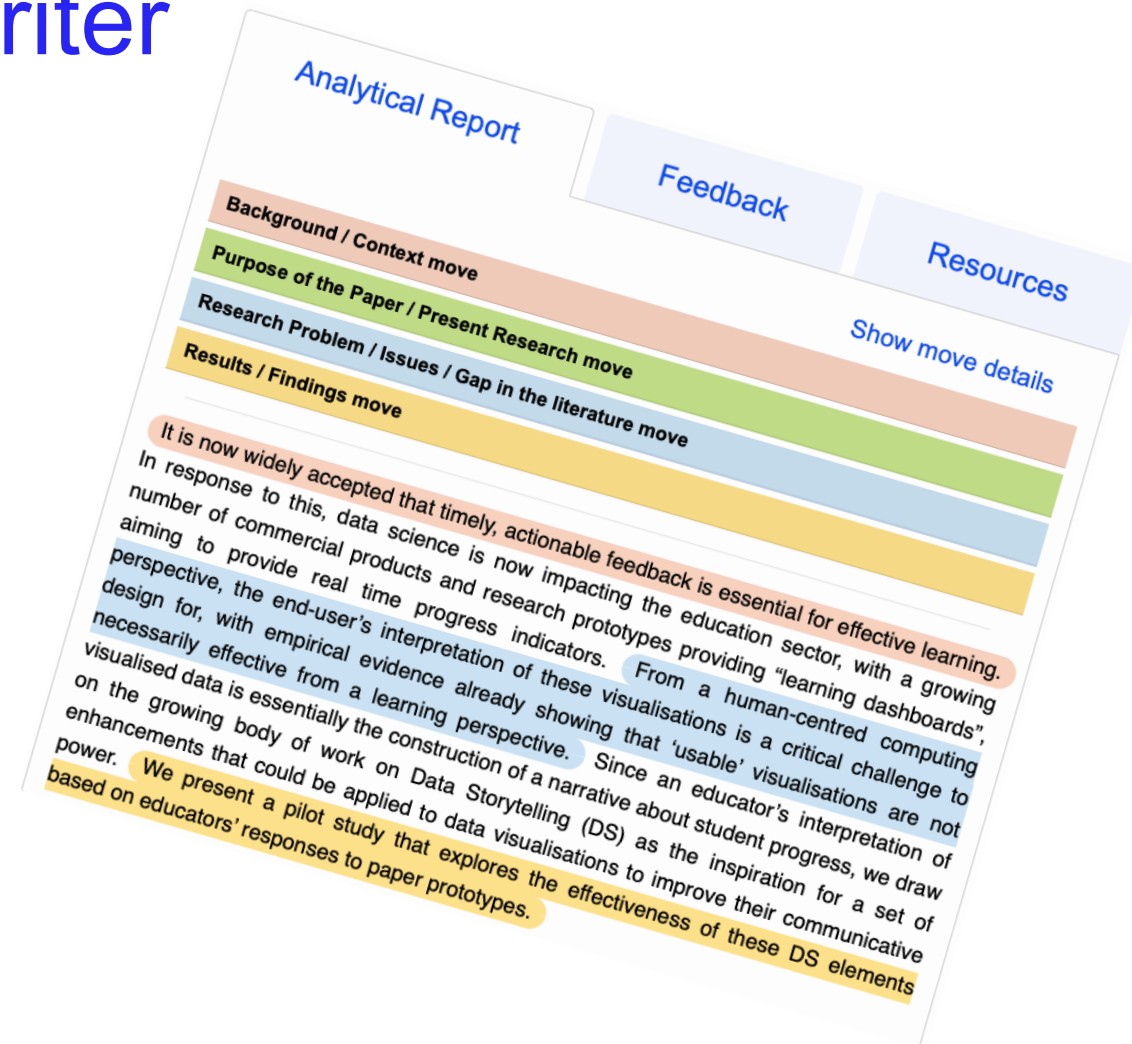
Nursing educator reaction to automated feedback on student teamwork

“I think it would be really helpful for students ... if you gave them really structured reflection questions ... and asked them to reflect on what they were doing — whether it was accurate or not, how they’re engaging with the patient and other team members, what they were thinking and feeling at the time — it would be a really valuable tool for deep reflection.”

What does success look like?

Students feedback on AcaWriter

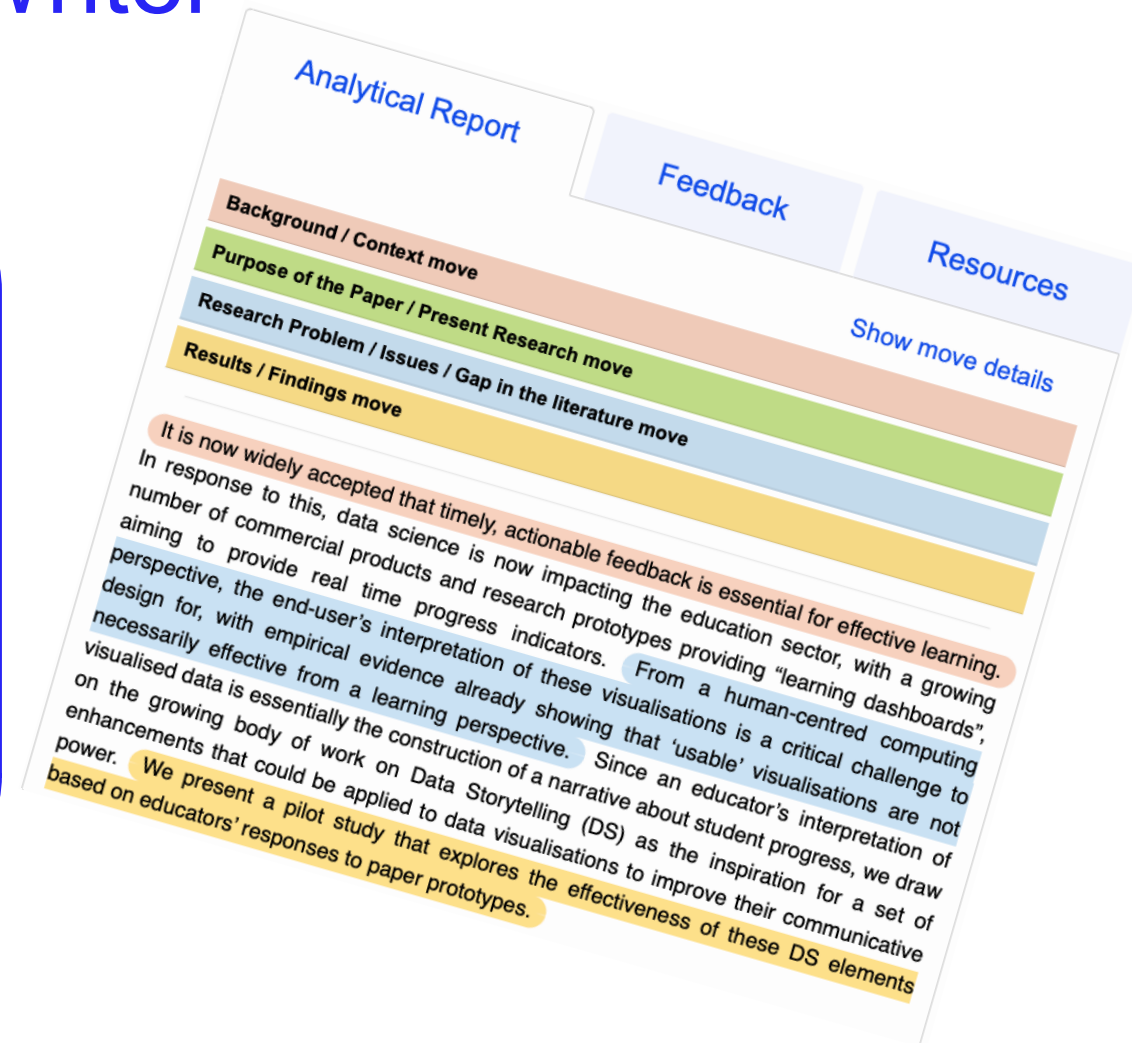
“I think what is being taught is something I was already aware of. However, by being forced to actually identify **ways of arguing, along with the types of words used to do so**, it has broadened my perspective. I think I will be **more aware of the way I am writing now.**”



What does success look like?

Academics feedback on AcaWriter

“We can’t afford to give formative feedback when we have 400 students because it already takes us maybe about 20 hours to mark one class of these assignments — and so we can’t have the tutors spend that time again giving formative feedback. So, we had to do it in a way that is time-efficient.”



What does success look like?

Educators' feedback on AcaWriter

“Overall, since we’ve been working with CLC around written communication over the course of the last four of five semesters, **we have seen marked improvement in students’ written communication.** Overall their individual assignment pass-rate is going up... We are seeing improvements in the number of students who are either **meeting or exceeding the expectations** around written communication”

The joy of seeing academics reporting their use of our tools 😊

#UTSLTF22 UTS Law academic Chris Croese shares how he uses OnTask to send regular, personalised email feedback to each student, joint work with CIC's @LisaAngeLim

👉 OnTask homepage: cic.uts.edu.au/tools/ontask

The screenshot shows a Zoom meeting with Chris Croese in the top left. The main screen displays a presentation slide titled "Key outcomes (1)" with a bar chart and a testimonial. The bar chart shows student feedback on four points: "The feedback made me feel more supported by my lecturers", "The feedback and support improved my current learning experience for this subject", "The feedback and support allowed me to complete my tasks and studies more effectively", and "The feedback and support improved the quality and standard of my work". The testimonial reads: "I thought it was a very lovely personalised touch that made me feel supported by my tutor. I was worried for Remedies because everyone said it was very hard but I felt I was always supported and felt the tutor wanted the best for us and to do well." The bottom of the screen shows the time "3:43 PM · Dec 2, 2022".

#UTSLTF22 @UTS_Science team used TRACK web apps to analyse skills overlaps/gaps between careers and UTS curriculum, to inform the new Science Employability Framework 👉 @willaonthego @scottchadwick87 & Charlotte Fleming

▶ Videos and more about TRACK cic.uts.edu.au/tools/track-sk...

The screenshot shows a Zoom meeting with three participants. The main screen displays a presentation slide titled "Project 2: Future TRACK" with a flowchart and a summary of the framework. The flowchart shows the process: "Develop a science employability framework to guide students' understanding of employability" leading to "Project 1: Use TRACK Designer to map skills from science graduate curriculum" and "Project 2: Use TRACK to map skills from science graduate roles", which both lead to "Identify common and emerging skills to build a three pillar framework". The summary lists three pillars: Knowledge (Literacy, Numeracy, Research, Problem Solving), Technical (Mathematics, Data Analysis, Critical Thinking, Creativity, Innovation, Design Thinking, Project Planning), and Professional (Communication, Teamwork, Problem Solving, Project Quality). The bottom of the screen shows the time "3:19 PM · Dec 2, 2022".

The joy of seeing academics reporting their use of our tools 😊

#UTSLTF22 Accounting for feedback- Accounting academics @AmandasAudit and Rina Dhillon share about how they used @ontasklearning for personalising study advice, with some evidence to show impact on students engagement

PERSONALISED STUDY ADVICE
Accounting, Business and Society

KEY OUTCOMES-1

Stronger performing students were more likely to open the personalised study advice email

Performance levels
Improvement needed: Pass or 2; Moderate Credit; Strong; Distinction or High Distinction

Percentage of students

Improved student Moderate student Strong Distinction

4:40 PM · Dec 2, 2022

#UTSLTF22 @KirstyKitto Georgia Markakis & Amy Cotton describe the Learning Design underpinning new TRACK Canvas modules for students at different stages, coming to a Canvas Commons near *you* to drop into your Subject 😊

▶ Videos and more about TRACK
cic.uts.edu.au/tools/track-sk...

Exploring careers

Each module is tailored

The content's language is adjusted and tasks oriented to the learners' experience

- Intro to lifelong learning
- Challenges students to future of work
- Guides students through stages of work integrated learning
- Summative experience drawing at UTS
- Using TRACK to plan study pathways
- Identifying through TRACK the skills aligned to evolving workplaces
- Exploring desirable workplace skills through TRACK
- Assisting students through TRACK to prepare for job applications

Ethics

As LA scales up, how do we build and sustain trust in the UTS community?

→ a structured, participatory, rewarding consultation process

The “EdTechEthics” Consultation

<https://cic.uts.edu.au/projects/edtech-ethics>

5 online Deliberative Democracy workshops, 3-4 hrs,
with UTS students, tutors and academics

Sept. 2021

Oct – Nov

Dec

→ 2022...

Recruit a “Deliberative Mini-Public”

20 students and staff

Commit to learning
from ‘expert
witnesses’ and to
reflective deliberation

Interactive workshops

Numerous hands-on
activities to help
engage with LA/AIED
ethical dilemmas

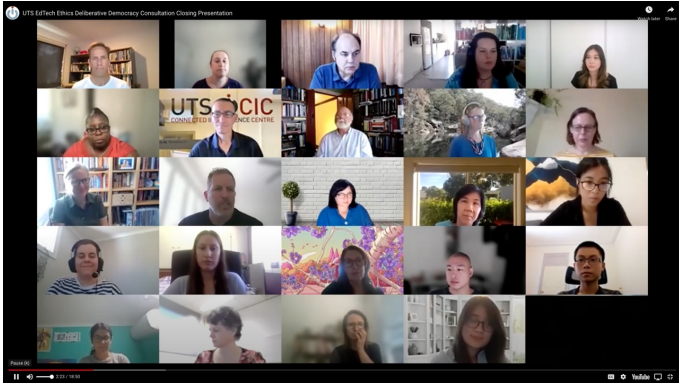
Identify, discuss and
prioritise principles
and develop UTS
examples

Present principles to UTS leadership

Open dialogue with
Data/Analytics
Governance

→ 2022: inform and
align with UTS AI
Policy

The closing presentation from the EdTechEthics consultation



Craig Napier: Chief Data Officer, UTS



Deborah Naray: Head, Corporate Information, UTS



Verity Firth: Director, Centre for Social Justice & Inclusion, UTS



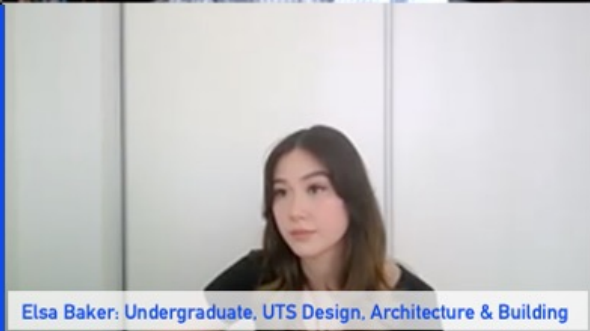
Camille Dickson-Deane: Senior Lecturer, UTS Science



Walter Jarvis: Lecturer, UTS Business School



Taylor-Jai Mcalister: Postgraduate, UTS Health




Elsa Baker: Undergraduate, UTS Design, Architecture & Building

EdTech Ethics
A UTS Deliberative Democracy Consultation (Oct. - Dec. 2021)


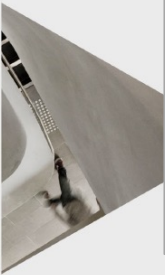
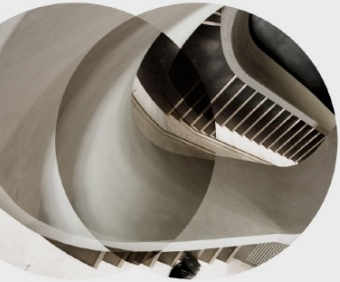
EdTechEthics principles & examples

How this could play out for UTS students, educators and the institution



The UTS “EdTech Ethics” Deliberative Democracy Consultation: Rationale, Process and Outcomes

Simon Buckingham Shum
Professor of Learning Informatics
Director, Connected Intelligence Centre, University of Technology Sydney
31st January, 2022



6.3 Bias/Fairness

Principle: UTS should aim to reduce bias involved in AAI-EdTech programs, and maintain the fairness in their development, use, and application of these tools.

Rationale: Bias: The application of AAI-EdTech programs may incur a level of bias as it is modelled against the majority of the population. It needs to be developed, maintained and reviewed to ensure nuances and inferences are not biased against minority groups.

Fairness: The use of AAI-EdTech programs need to consider fairness, avoid and evaluate inevitable bias groups/individuals

6.4 Equity and Access

Principle: UTS should aim to ensure that AI-Edutech programs promote social justice and are equitable and accessible. This includes ensuring equitable access to information and technology that is delivered in language and formats that reflect the diverse needs of the UTS community and equitable access and input to the review of AI-Edutech systems

Rationale: Technology should promote social justice, affirmative action and positive discrimination (rather than merely preventing inequities). Access encompasses both access to information and access to technology in the fields of learning and teaching. Access to technology processes people with diversities, ensure social be ensured implement necessary occurs and

6.6 Human Authority

Principle: UTS commits to preserving human autonomy, agency and decision-making while harnessing the opportunities presented by AAI-EdTech

Rationale: AAI-EdTech presents many opportunities and affordances in the educational context. These are likely to grow in both number and complexity in the future. AAI-EdTech has potential to free educators from repetitive tasks so they can have more meaningful interactions with students and each other. For students, it has potential to personalise the learning experience and enhance formative and self-regulated learning opportunities. However, human educators bring an important personal dimension to the education process that cannot be fully replicated by AI or captured solely by an algorithm. AAI-EdTech should therefore be a tool or an assistant to students and educators, but should not replace human decision-making. AAI-EdTech systems should be designed with safeguards that allow human input, interventions and challenges to outcomes at appropriate points.

Examples

Students

1. AAI-EdTech systems that allow self-pacing / self-regulated preparation for live classes (examples?)
2. AAI-EdTech tools (eg, AcaWriter, dashboards) that help students improve their own work
3. Formative not summative use of these tools
4. Student right to opt-out (Q: technical feasibility?)

Educators

3. Over of p ver issi cul
4. Equ be sys in a

University

5. An acc det
6. UT acc ren

Educators

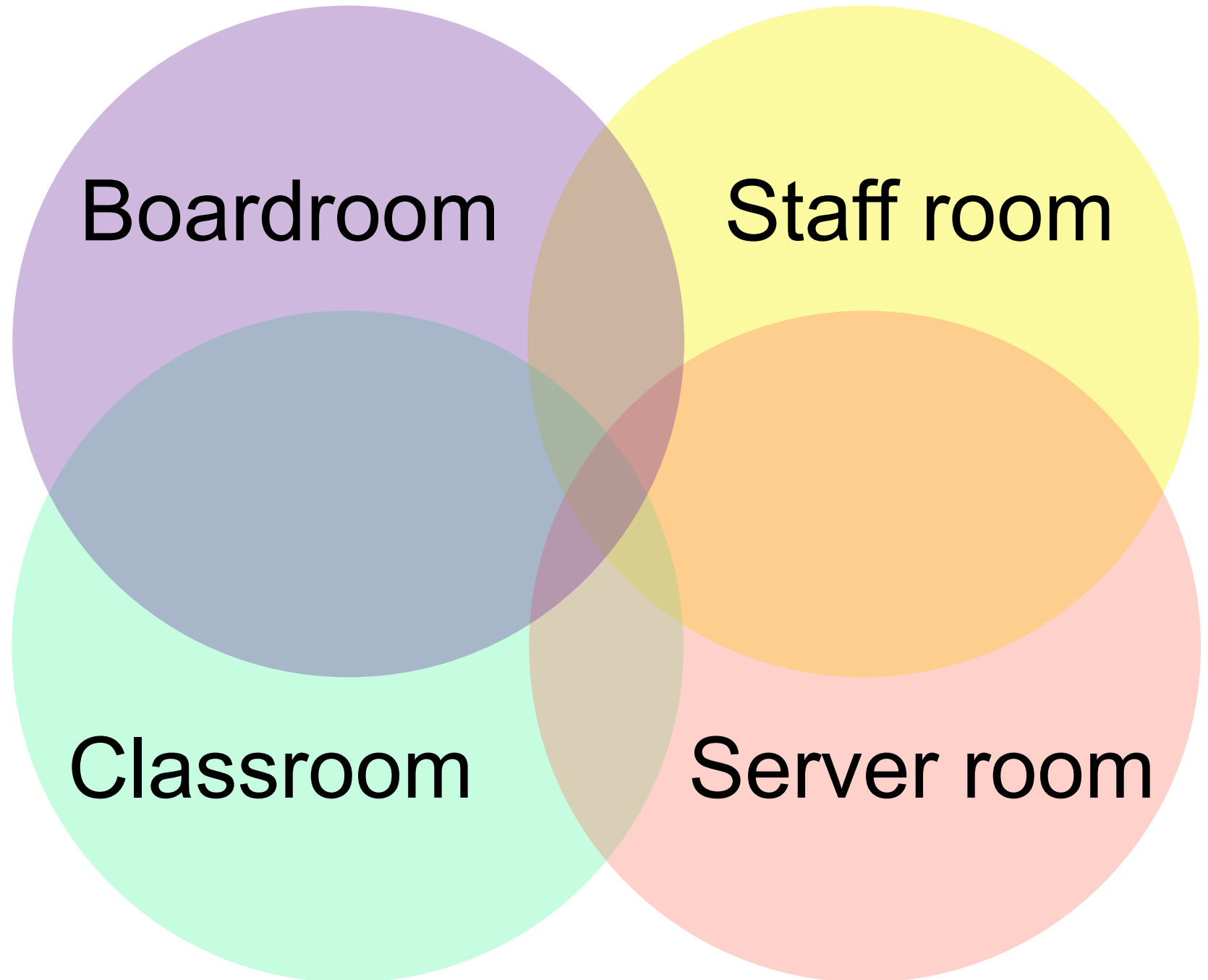
7. A student can be rest assured that the information collected by an AAI-EdTech tool will have a human that understands the unique challenges the student faces. For example, students may have a learning disability that a human educator can customise learning for.
8. Maintaining the choice to be able to opt for a face-to-face or direct to tutor option over choosing AAI-EdTech feedback or assistance.
9. Students not boxed in by a one-size fits all AAI-EdTech system that doesn't take into account the diverse needs of individual students



UTS AI Operations Policy 2022

**“LA culture”
comes from trust**

**Trust comes from
respectful
conversations in 4
different ‘rooms’...**



Balancing and aligning the elements



Learning Analytics
User Experience

Learning Analytics +
Learning Design

Learning Analytics
Co-design

Organisational
Strategy

The chapter behind this talk...

<https://simon.buckinghamshum.net/2022/07/embedding-learning-analytics-in-a-university/>

Buckingham Shum, S. (In Press). Embedding Learning Analytics in a University: Boardroom, Staff Room, Server Room, Classroom. In Viberg, O. and Grönlund, Å. (Eds.), *Practicable Learning Analytics*, Springer Nature.

Abstract: In this chapter, I describe and reflect on the last 8 years at an Australian public university, inventing, piloting and evaluating Learning Analytics tools, specifically focused on data-driven personalised feedback, leading in some cases to integration with the institution's learning technology ecosystem, and accompanied by staff training and support. I will summarise this as conversations in the *Boardroom*, the *Staff Room*, the *Server Room* and the *Classroom*, reflecting the different levels of influence, partnership and adaptation required to introduce and sustain novel technologies in the complex system that constitutes a university, or indeed, any educational institution. This chapter is pragmatic, documenting aspects of our work that are typically not the focus in research papers, intending to make a practice contribution.

Keywords: Organisational Strategy, Innovation Diffusion, Personalised Feedback