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Comment Mining – Diving into our most underutilized resource using Artificial Intelligence

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What are your options?

- Ignore the risk
- Take a sampling approach
- Outsource the work
- Accept how long it will take
- Utilise machines

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Student and Staff Insights Team

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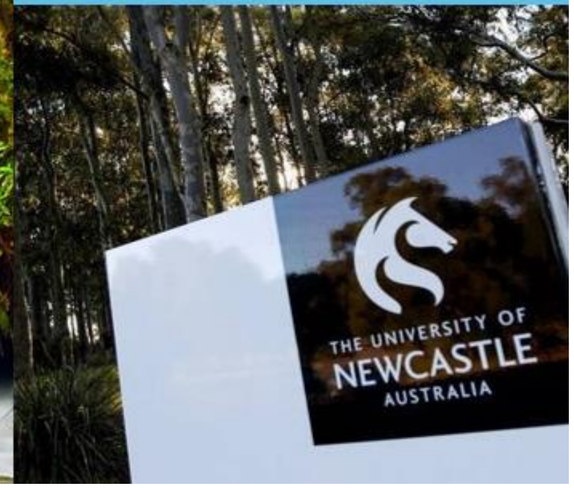
NEWCASTLE

HUNTER VALLEY

CENTRAL COAST

UNIVERSITY OF NEWCASTLE



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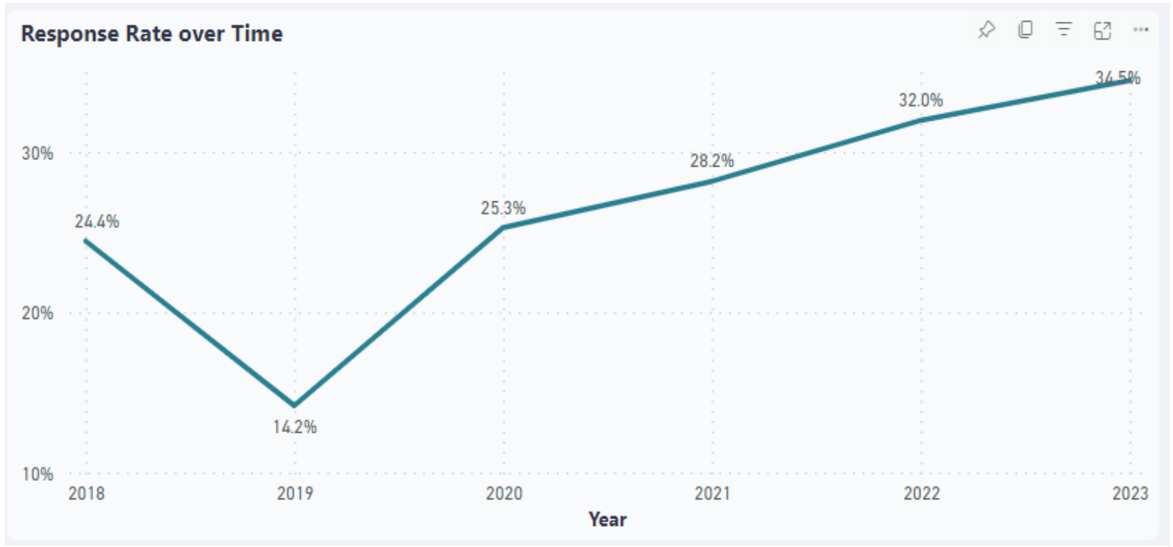
What have we done?

- Complete overhaul of the survey collection process
- Built a strong feedback culture
- Open conversation with students and staff
- Made it easy to be part of the solution
- Created partnerships between the students and staff



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how to make a

Compliment Sandwich

Giving feedback important part o university exper

Learn more at www.feedbacka om.au

Start off positive

Add your critique

Suggest solutions

End on a good note

A how-to guide

Giving Constructiv Feedback ✓✓

01 Be Objective

State what you actually experienced - don't speculate or make assumptions.

02 Be Human

Often you are giving feedback to a real person with real feelings! Be considerate an allow for small errors or mishaps.

03 Be Balanced

Provide a balance of positive and negative feedback, and remember to identify what can be improved.

04 Be Specific

Try and make your feedback clear and avoi vaguely addressing the topic.

For more info on giving and receiving good feedback, head to universityofnewcastle/feedback

How you say it can make all the difference

What were your favourite aspects of the course?

The assignment was great !

Better Feedback

Everythin

Meh Feedback

I really liked the assessment. The rubric was clear and the Blackboard material was helpful.

Best Feedback

Giving feedback is an important part of your university experience.

Learn more at www.feedbackandalll.c om.au

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Case Study – Discover what works in the classroom

- **Dr Meredith Tavener**

- Treat feedback as an interaction
- Help students understand their feedback is taken seriously
- Trust that what students write is important
- Use student feedback (even the negative bits) as a chance to reflect on teaching
- Set the scene for open feedback channels – keep working iteratively to ensure students are heard
- Be authentic, be real – the good, bad and ugly
- Ensure the feedback process is valuable to students and educators

Description

Introduces students to qualitative research and methods for qualitative data collection, analysis and interpretation, with a focus on health research. The course develops students' skills in qualitative research design, appraising qualitative research and conducting interpretive analysis.

Now we have the data – What were our options?

- Ignore the risk
- Take a sampling approach
- Outsource the work
- Accept how long it will take
- Utilise machines

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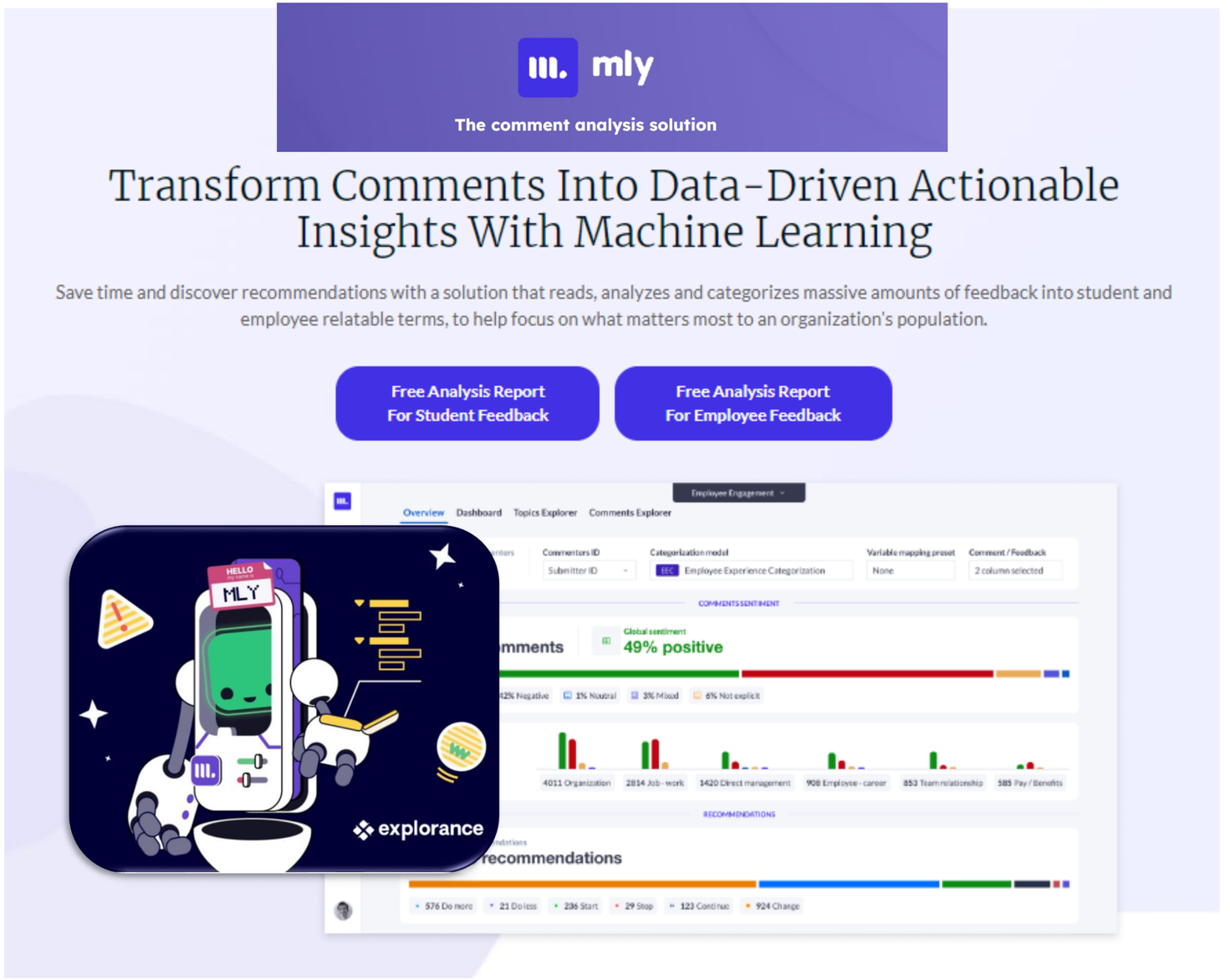
Learning to work with machines

- Detecting comments of concern
- Read it once, never read it again
- Swear jar

Machine Learning

- Analyse phrases rather than words in isolation
- Alerts help prioritize potential comments of concern
- Negative comments are identified through sentiment analysis
- Multiple types of categorization including themes, sentiment, alerts and recommendations
- Removal of bias, naivety and significantly reduced human error



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What to do with all this spare time?

- Consider why we were reading the comments
- What are we hoping to achieve
- Identify issues as they are reported
- Preventing psychological harm
- Reinforcing the feedback culture

FEEDBACK MATTERS

Course Experience Survey Hub

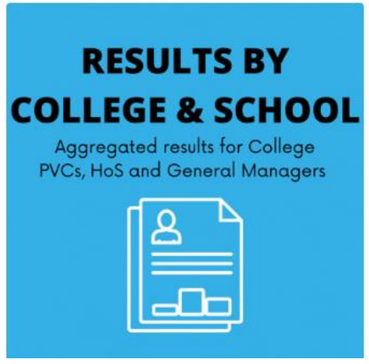
Welcome to the CES Hub! We hope to provide you with all the information you need about the Course Experience Survey, including access to reports via this page. If you cannot find what you are looking for on this page, or in our FAQs, or if you have more complex requests, please contact us at surveys@newcastle.edu.au

Feedback enables reflection and is a valuable tool to refine our teaching practices. It is not about criticism, it is about the pursuit of excellence, identifying professional development opportunities and allocating support to improve the quality of education at the University of Newcastle.

CES Live Response Rates

Quantitative Course Feedback Report

Qualitative Course and Teacher Feedback Report



Quick Links

- CES Information Booklet
- CES Questionnaire
- Resources For Staff
- Key Dates
- Report A Student Comment
- Frequently Asked Questions
- Participant Privacy Policy

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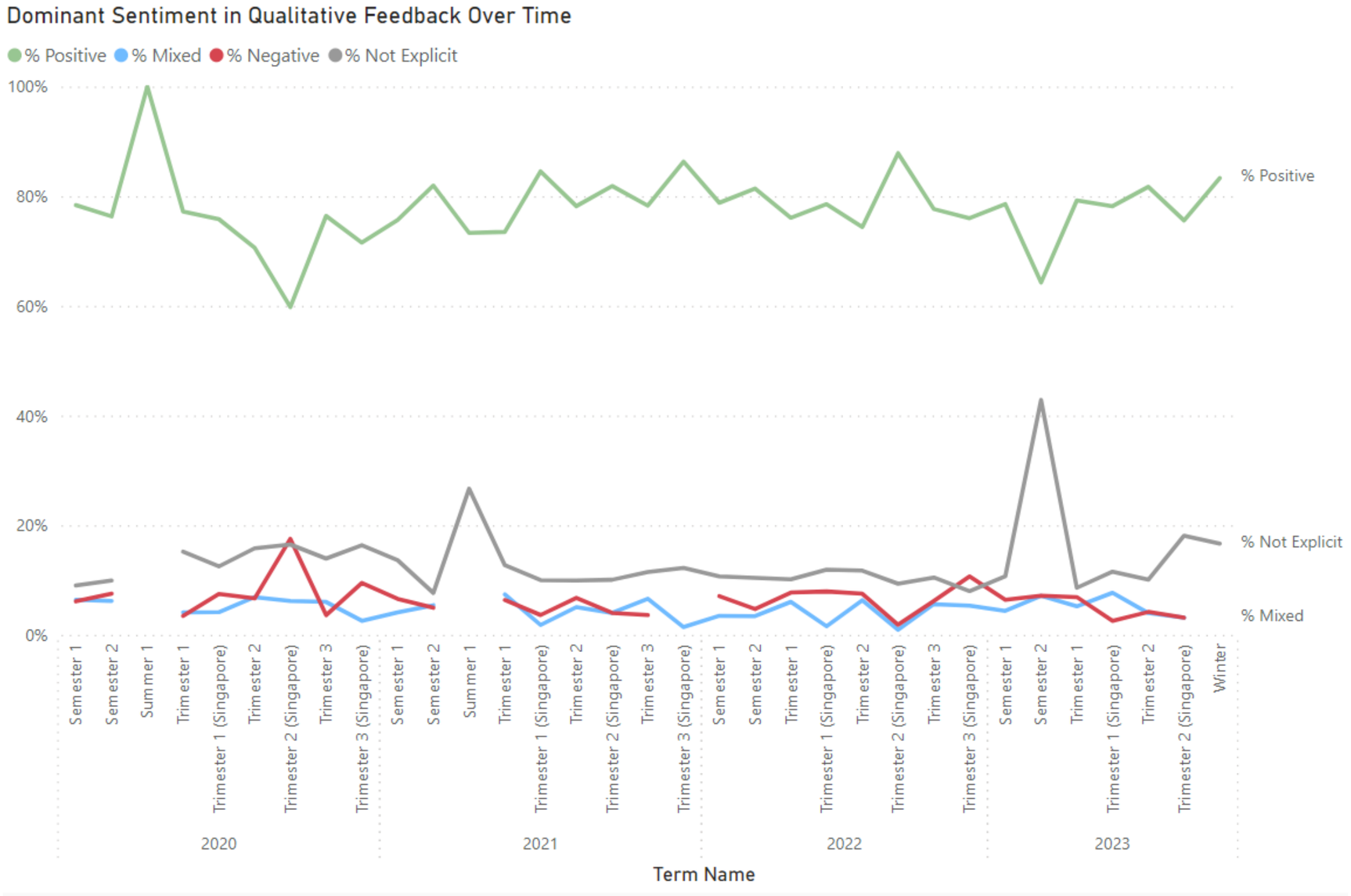
Advanced reporting capabilities



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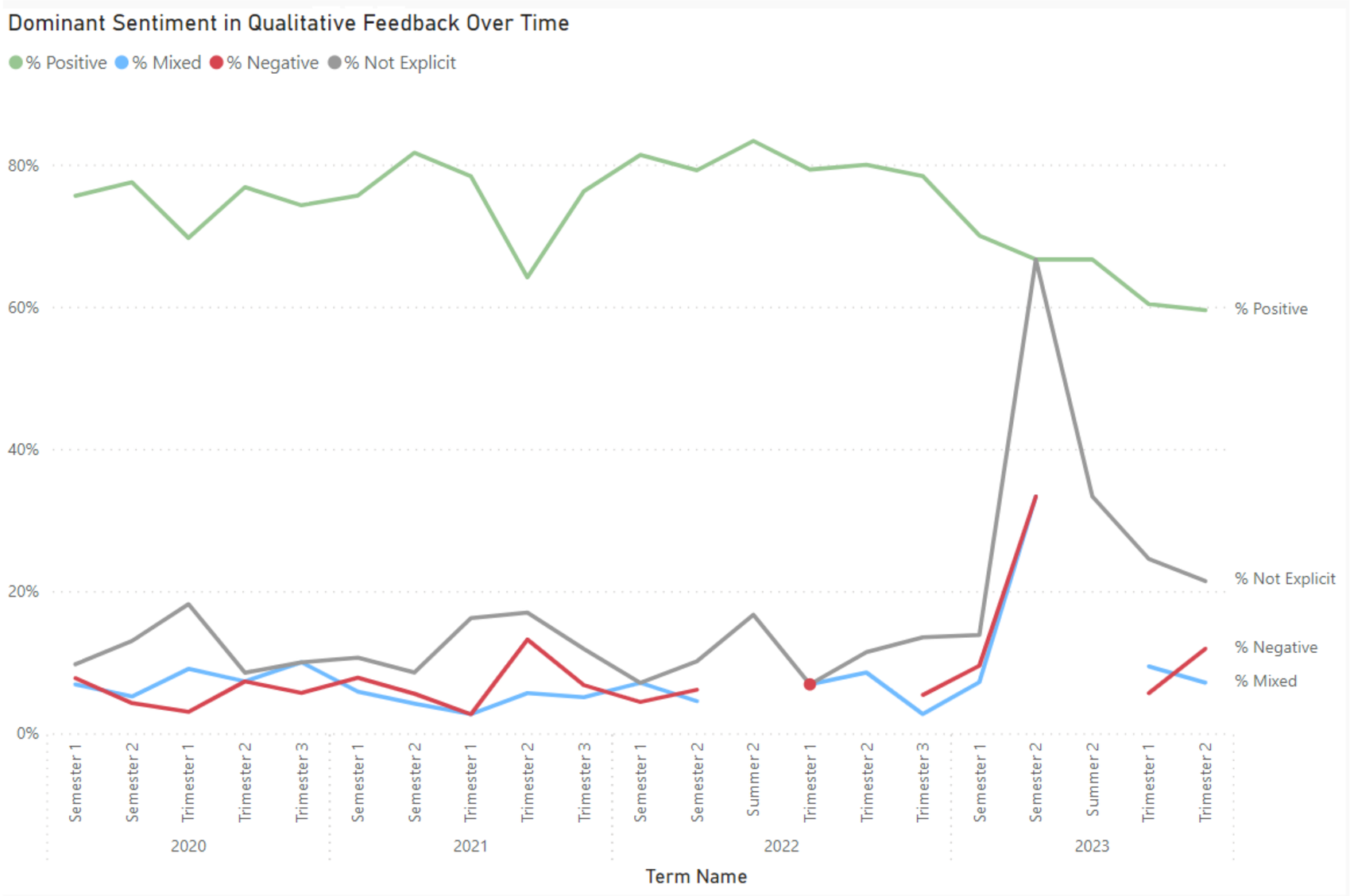
Advanced reporting capabilities



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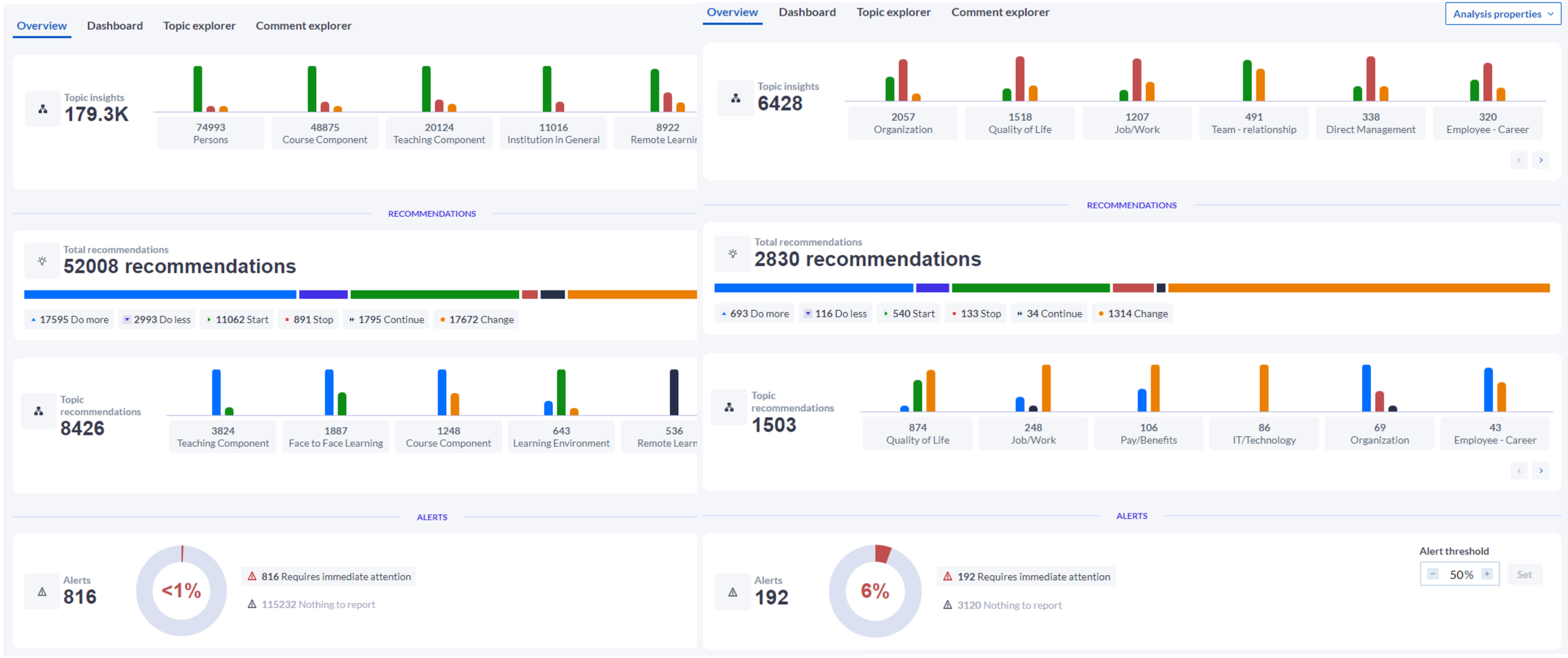
Prioritizing comments



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Making issue detection easy

Priority Indicator - This value has been generated by machine learning to assist staff in prioritising comments for review.
Values are displayed under the dominant sentiment of the whole comment. Use the + sign under each course to expand into comment topic categorisations.

Dominant Sentiment / Course	Mixed Priority Indicator	N	Negative Priority Indicator	N	Neutral Priority Indicator	N	Not Explicit Priority Indicator	N	Positive Priority Indicato
MEDI6320 Stroke: Acute Management (Online)	77.07	1					0.48	2	0.0
EDUC2136 Spec Studies in Drama 1 (Callaghan)	94.35	1	38.65	1			0.79	1	0.2
ARBE6408 Professional Practice Research (Callaghan)	47.44	4					0.95	2	0.4
ENGG6830 Engineering Project Management (Callaghan)	16.19	2	64.84	5			26.20	4	0.8
CHEE4945B Design Project B (Callaghan)	87.91	1	37.61	6			2.79	4	0.8
LING6930 Language and Meaning (Online)	16.48	2	82.86	1					15.4
NURS3103 Healthy Ageing Across Contexts (Port Macquarie Nth Coast Inst)			16.66	3			0.69	1	27.7
ARBE3226 Special Projects 4 (Callaghan)	99.44	1					0.17	1	4.8
EDUC2196 QT and Student Learning (Ourimbah)									22.8
ARBE2308 Cost Planning and Estimating (Online)	60.80	3	12.48	1			0.26	1	0.3
PHYS1200 Introductory Physics for LS (Callaghan)	1.05	1	3.38	3			1.30	4	30.5
Total	**5.45**	**5620**	**7.95**	**7797**	**2.09**	**49**	**1.28**	**10443**	**0.8**

Comment	Dominant Sentiment
(...) I was very disappointed and even insulted by the lack of support and feedback for assessment tasks. Being told to create a full unit plan assessment task without support or any examples was cruel and disrespectful. I really enjoyed this teacher and thought she was amazing until I was extremely let down when it came to the uncertainty of assessment tasks.	Mixed

Ethics – Using Artificial Intelligence in Decision Making

INTRODUCTION TO MACHINE LEARNING

WHAT IS IT?

Machine Learning is a form of artificial intelligence that clusters, classifies and makes predictions from data.

It is used to replace complex and/ or labour-intensive tasks.

It replicates human problem-solving processes; but should not replace human intervention.

It 'learns' by identifying patterns in data – especially useful for unstructured data such as the qualitative comments collected through the course experience survey.

These patterns are developed into "Learning Models". It takes guidance, structure, data, and time to train the models; and it takes someone to interpret the outcomes, both during development and after deployment.

It can only generate insights based on the data that is fed into it. Improving the quality of student comments continues to be a focus.

Machine Learning is only part of a process for decision making and action to improve the quality of learning and teaching at the University of Newcastle.

The machine learning process used at the University of Newcastle combines in house algorithms and a proprietary tool (**BlueML**) to analyse student comments collected through the Course Experience Survey.

WHY IS MACHINE LEARNING REQUIRED?

The university of Newcastle seeks the feedback from all students enrolled in all courses in every teaching period. This generates a large amount of unstructured data (e.g. 67,926 comments in Semester 1, 2021).

In the past, comments were manually read by casual staff. Whilst this was a comprehensive review of all comments and ensured all comments of concern were detected, it was costly, time consuming, prone to human error and detection was the subject of personal risk tolerances.

It is not possible to prioritise these comments to ensure the most serious comments are read first without some form of computerised processing.

Whilst the majority of student comments are positive or constructive, they sometimes breach the code of conduct. Comments may contain rude, offensive or hurtful language that impact staff wellbeing. No staff member should feel unsafe reading feedback. This process allows us to identify and redact potentially hurtful comments.

Occasionally students raise other concerns, such as self-harm, experiences of harassment or discrimination that are stressful to read and beyond the remit of their teachers. We can use this process to direct Campus Care to offer additional support.

By implementing a machine learning tool, the processing time of comments and the accuracy and consistency of detection can be vastly improved.

You can improve the quality of qualitative feedback by talking to students about the CES. Giving useful and constructive feedback is a skill they will use throughout their careers. Ask explicitly for feedback in particular aspects of the course/ your teaching you are looking to improve. We have **resources available** to students on how to provide constructive feedback.

The machine learning tool has the potential to add analytical value – it can systematically analyse sentiment and categorise the data according to a coding frame aligned to the student experience of higher educational learning. We hope to share these insights in future dashboards and reports.

WHAT ARE MY RIGHTS AND RESPONSIBILITIES AS A TEACHER?

WHAT DECISIONS ARE BEING MADE BY A MACHINE THAT WILL IMPACT ME?

- The machine learning tool will decide what sentiment category it thinks a comment belongs in.
- The machine learning tool will decide what teaching and learning components are present within a student comment from a defined coding frame.
- We use the machine learning tool to decide if a comment should be reviewed by a human.
- The machine learning tool may also decide not to flag an inappropriate comment.

WHAT ARE MY RIGHTS AS A TEACHER?

Teachers have a right of reply. The machine learning tools are not perfect and may not detect all comments that contain inappropriate language or content. Teachers have the option of reporting a comment to the Student and Staff Insights team for review. A review of a comment may require that comment to be manually flagged and escalated to the appropriate team or a comment may be redacted. Teaching staff are welcome to request redactions which will be assessed on a comment-by-comment basis.

YOU HAVE A RIGHT TO PRIVACY!

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Thank you

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