Leveraging student evaluations for learning analytics
Outline

• Background
• Learning analytics
• Student evaluations in higher education
• Data requirements for using evaluations in learning analytics
• Example analyses incorporating evaluation data
• Future directions
Background

UQ, Institute for Teaching and Learning Innovation (ITaLI)

• UQ is new to both learning analytics and online student evaluations.
• First pilot of online evaluations was conducted in Semester 1, 2014.
• Evaluations were fully online as of Semester 2, 2014.
• New Learning Analytics team commenced early 2015, and works together with the Evaluation Unit.
• Last 6 months:
  • Examine current capabilities.
  • Explore future opportunities.
Learning analytics

“The measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs” – SoLAR, 2011

• Improve student retention (Arnold & Pistilli, 2012).
• Examine student engagement and student performance as predictors of attrition (Aguiar et al., 2014).
• Identify popular course resources and usage patterns (Hecking et al., 2014).
• Inform course and program design (Ferguson et al., 2014).
• Detect on/off task behaviour (Baker, 2007)
Student evaluations in higher education

“…can provide important evidence for assessing the quality of teaching, for supporting attempts to improve the quality of teaching and for informing prospective students about the quality of course units and programmes” – Richardson, 2005

- At UQ: Student Evaluation of Course and Teaching (SECaT)
- Measure/monitor the quality of courses and teaching for quality assurance (Marsh, 2007)
- Research on teaching (Marsh, 2007)
- Source of information for students when selecting courses and/or teachers (Marsh, 2007)
- Measure of teaching quality for promotion and awards (Marsh, 2007)
- Source of feedback for improving courses and/or teaching (Marsh, 2007)
- Measure of student satisfaction
Student evaluations in higher education

Online administration

- Most Australian universities have now adopted online student evaluations over paper-based methods.
  - Improved accuracy
  - Lower cost
  - Quicker turn-around (reporting, etc.)
  - Greater capacity for quantitative and qualitative analysis
- Debate continues regarding the use of online evaluations compared to paper-based evaluations, but generally the research shows:
  - High response rates are still obtainable (at UQ ~ 42% average without incentives)
  - Students prefer online evaluations
Data requirements for evaluations in learning analytics

Confidential, online student evaluations

- Confidential evaluations allow for analysis down to the student level.
- Import student number as part of the data for scheduling evaluations, which can be matched to other sources of data.
- UQ’s process protects students from being identified by anyone outside the Evaluation Unit (3 staff).
Data requirements for evaluations in learning analytics

Data warehouse with multiple sources of data

- Readily available sources (in the Data Warehouse at UQ) include:
  - SI-net (course enrolments, grades, timetabling, student demographics inc. ATSI, etc.)
  - Electronic Course Profiles (teaching staff, assessment items, contact hours, etc.)
  - Aurion (staff demographics, training/qualifications [limited], etc.)
  - Student Evaluations (course and teaching evaluations)
  - Queensland Tertiary Admissions Centre (student demographics inc. high school, OP, preferences, parents’ education, SES [postcode], etc.)
  - UQ is the custodian of GO8 data (for comparison/benchmarking: enrolments, completions, demographics, teaching staff)
Data requirements for evaluations in learning analytics

Data warehouse with multiple sources of data

• Other sources (not in the Data Warehouse…yet!):
  • LMS: Blackboard (Pyramid)
  • Echo360
  • Library
  • UQx
Example analyses incorporating evaluation data

Pilot analysis

- Semester 1, 2015
- One school only: 45 courses with evaluation data (>5 responses)
- Average of 171 responses per course
- 7,698 unique students
- 2,704 students participated in evaluations
Example analyses incorporating evaluation data

Participation analysis: Pass/Fail

- 902 Passes
- 326 Incompletes
- 6,470 Fails

Participated
- No
- Yes

Leveraging student evaluations for learning analytics
Example analyses incorporating evaluation data

Participation analysis: Grade and GPA

- **Grade**
  - Completed SECaT: 5.54
  - Did not complete SECaT: 4.92

- **GPA**
  - Completed SECaT: 5.49
  - Did not complete SECaT: 4.87
Example analyses incorporating evaluation data

Participation analysis: Age

- Completed SECaT: 22.77 years
- Did not complete SECaT: 21.43 years
Example analyses incorporating evaluation data

Participation analysis: Gender

- **Female**: 5,520 participants, 40% participated (Yes)
- **Male**: 2,180 participants, 20% participated (Yes)

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Example analyses incorporating evaluation data

Correlation between academic performance (pass/fail) and student evaluations

<table>
<thead>
<tr>
<th>SECaT Q8</th>
<th>Pass</th>
<th>Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.08</td>
<td>3.57</td>
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</tbody>
</table>

Leveraging student evaluations for learning analytics
Example analyses incorporating evaluation data

Correlation between academic performance (grade) and student evaluations

r = .176
p < .001

Not to scale!
Example analyses incorporating evaluation data

Predicting academic performance based on student evaluations and demographics

Not to scale!

Grade

SECaT

Gender (F)

Age (older)
Future directions based on broader data

Moving from myth-busting to wider implementation

- Adding predictions of academic performance (based on demographics and evaluations) to course reports.
- Apply analyses to full set of UQ evaluations data.
- Incorporate qualitative analysis into course reports.
- Refine communication strategies to target the groups of students who aren’t engaged with student evaluations and courses.
- Refine support strategies to target lower performing students and improve course outcomes.


thank you!

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