# Text Analysis of Student Surveys

Learner Analytics Choose Your Own Adventure

By Ryan Day

This report for Extended Education (EE) at the University of Manitoba will provide a brief overview of student evaluation surveys and how they are currently being implemented in our online programs. The report will explore how the current surveys could be supplemented with learning analytics for a more robust evaluation of teaching and programming.

# Introduction

A student survey delivered near the end or after the completion of a post-secondary course is standard practice in higher education. The ubiquity of the student survey has been driven by pressure for schools to be accountable, ensure quality, and encourage reflective practice among teaching staff (Moore & Kuol, 2005). This coincides with institutions increasingly viewing their learners as consumers (Lindahl & Unger, 2010) and consequently there is an expectation of quality assurance and customer experience. There is a lot of literature on this subject due to academics direct interest in this topic. Student feedback can be a source of anxiety for academics that find survey comments off-topic, non-constructive, or even cruel (Tucker, 2014). Student evaluations are a source of controversy that produce a number of opinion pieces and news stories (Peters, 2019) due to the impact they can have.

Technological advancements in the delivery of education have allowed institutions to easily collect information from learners not previously possible. This data could provide a more complete and balanced view of a learners experience than a student survey alone. Furthermore, new techniques and tools can provide advanced analysis of the traditional surveys.

# Student Surveys in Higher Education

There are often political and philosophical debates that occur alongside any discussion on how student surveys should be interpreted. These surveys typically include questions about the instructor's performance and can include more comprehensive questions about the course, program, and institution. It is critical to remember that student ratings capture student perceptions but are not formal faculty evaluations and they do not measure student learning (Linse, 2017). Student evaluations are a valuable information source that provide context and understanding but they are not perfect or complete.

There is little consensus on the reliability and validity of student surveys.  The survey response can vary widely but is typically low and this affects generalizability (Alhija, 2009). There are concerns regarding survey scores correlating with external variables including student course load, leniency in grading, student interest in subject, personality, physical attractiveness of the instructor (Lindahl & Unger, 2010), and even the time of day a course is offered (Peters, 2019). There also a concern that the biases that exist in society including sexism, homophobia, or racism can influence survey results. Researchers like Linse (2017) acknowledge the presence of these biases but asserts that the performance of faculty who consistently received poor ratings rarely could be fully attributed to this bias.

Although Tucker (2014) notes that the majority of students comments are not abusive and unprofessional these types of comments do occur.  This is troubling when considering academics tend to focus more on negative comments and less on positive ones and this can potentially skew their consideration of the data (Moore & Kuol, 2005). Comments from students can also be general or viewed as off topic and unhelpful. Lindahl & Unger (2010)

observed how dissatisfied students often cite not getting their money's worth for the cost of their tuition. This type of feedback might be easily dismissed as outside the control of the instructor and obfuscate useful information that could improve teaching of a course.

Despite the limitations of end of course surveys, the data they generate is being used to inform and defend important decisions. Student evaluations were initially intended to provide feedback to improve instruction but are now increasingly employed in determining promotion, tenure, performance funding, and awards (Lindahl & Unger, 2010) (Tucker, 2014). Jones, Gaffney-Rhys and Jones (2012) note that this data, if improperly used, can result in harming an academics reputation or even lead to their dismissal. This can be particularly troubling to academics that question the validity of student survey results.

Student rating data is an important tool for creating a well-functioning and quality learning environment within an institution, but only if it is being used appropriately. Linse (2017) notes that the misuse of this data leads to mistrust, inconsistencies, and inequities that demoralizes faculty. It is important that student surveys are used transparently and their results are interpreted fairly.

## Student Surveys in Extended Education

Student end of course surveys in online EE courses are different from the more rigid and standardized surveys in the degree-credit faculties of the University. This allows for greater flexibility and the opportunity to adapt evaluation to meet our needs.

Currently EE provides an anonymous survey link to students during the final weeks of our online courses. There is a standard set of questions that are adapted by the assessment

lead to include program-specific questions required for program evaluation plans. Questions in the survey are grouped into sections typically including course design, instructor, course administration, and student experience. The majority of questions are Likert-scale questions that produce quantitative data. Qualitative data is occasionally collected with open-ended general comment sections with text response boxes.

The results of the surveys provide important information to staff in EE. The delivery team reviews the feedback and discusses feedback with their instructors. Design and Production (D&P) review the feedback on an on-going basis to make minor adjustments to courses being delivered. D&P will review several years of feedback before completing a scheduled major redevelopment of a course.

A challenge with the surveys in general is the low-response rate. General comment questions are often skipped or are not answered in detail. Staff view surveys as a helpful tool but an incomplete picture.

## Learning Analytics to Enhance

The emerging field of Learning Analytics is an opportunity to move beyond student surveys and gain a more holistic view of how our courses are functioning. Alderman, Towers, and Bannah (2012) recommend survey data is supplemented with information from other sources to achieve robust links to the the overall quality management regime of institutions.

There are a number of areas where the data captured by our LMS intersects with the survey topics we typically ask our students about including engagement, workload, and

collaboration with peers. Data that could provide context to these evaluation topics include log-in information, progression through the course content, discussion logs, and assignment grades. For example an important pillar of our Program Development for Adult Learners (PDAL) certificate is collaboration between learners from different backgrounds. We ask students in the survey about this but can also explore the discussion forum logs. Learner analytics could visualize this data with an interactive web of connections.

Learning analytics like the traditional end of course student survey provide us with powerful insights but there are limitations to the conclusions we can draw from them. The human interpretation and analysis of findings is currently still important.

## Text Analysis

The large number of students we serve each semester and the amount of information we are seeking has required us to limit the number of open-ended qualitative questions in our surveys.

Qualitative data collected via text-entry questions in our surveys can be valuable in creating a well-rounded view of a course offering. Santhanam, Lynch, & Jones (2018) Note that written comments in teaching and unit evaluations are an overlooked source of rich data. They can generate unique insights because students are free to explore what they perceive to be important in open-ended questions (Stupans, McGuren, & Babey (2016).

The implementation of an automated process can improve the efficiency of interpreting student comments and reduce the amount of human intervention required (Santhanam et al. 2018). Text-mining establishes relationships between texts to identify

patterns, frequency, and connections between words (Tucker, 2014). Computer analysis of text data makes free-form text more accessible by extracting common themes and identifying issues that may be missed in a human-only analysis of results (Stupens et al., 2018). There are a number of tools available or in development that could perform this function. Santhanam et al. (2018) identify and review a number of text-mining tools including Word-Stat, Leximancer, SPSS Text Analytics, and QSR Nvivo. The features of these tools vary and the costs can range from free to several thousands of dollars for a license.

# Quantext

I experimented with the text analysis tool Quantext to get a better understanding of how this technology might be applicable to evaluation. I used a data set from an edx-based UBC MOOC on climate change. I took the climate_exit_survey.xlsx file and formatted it for input into Quantext. I chose the two open-ended text entry questions from this file to analyse:

1. What did you like most about this course?
2. What did you like least about this course?

I created a new Excel file according to the Quantext documentation with an index sheet listing the questions and a separate sheet for the results of each question. It was incredibly easy to get the survey data into Quantext and this could be done for University of Manitoba survey data exported from our survey tool.

The tool was able to give me broad strokes impressions of the data that occasionally required further drilling down. When I clicked on a word for example that was popular it would show me the context it was used in. From the results I could see that students liked

the videos and the instructor. One of the least liked aspect of the course was the assignments.

**Strengths**

- Inputting data was easy and could be implemented into our existing procedures. We currently use a professional survey monkey account that can output data into a .csv file that can be converted into Quantext-formatted .xlsx file.
- The tool has an intuitive layout that is relatively easy to navigate.
- There are advanced settings that allow for experimentation and fine-tuning of the analysis.

**Weaknesses**

- Staff would be required to format the data for entry into Quantext. This would have to be assigned to someone in EE to perform at the end of each semester.
- The output reports Quantext automatically generate are basic which is good for readability but may lead to additional questions from staff. Staff may request access to the tool and this could be difficult to manage.
- The analysis still requires human oversight. In the sample data I analysed I found some of the phrases highlighted were not relevant or unimportant.

**Opportunities**

- Implementing a tool like quantext would increase our ability to capture important qualitative data.
- Text-analysis could be helpful in other context. For example Quantext could analyse text from discussion forums, portfolios, or assignments. Assessment plans for programs could better explore abstract topics that require qualitative data.
- The literature reviewed for this report highlighted a problem of abusive or unprofessional language in text-entry survey responses. This has not been a major

issue identified by EE but is still an important consideration. The blacklisted words feature in Quantext could filter our abusive language before instructors see the results.

**Threats**

- There is a risk of collecting less data than we currently do. Open-answered question are not always answered.

- Quantext is cloud-based and there may be an issue with data security and privacy. This would need to be further reviewed to ensure that the use of these types of tools fall within University policies and best practices.

- With any new assessment initiative staff worry about being assessed fairly and that there will be an increase in their workload.

# Final Recommendations

**Analyse our Current Surveys**

The Assessment Lead should seek permission to analyse EE data from existing surveys using Quantext.

**Faculty Buy-in / Training**

Any changes to how EE currently collects and analyses end survey data will require staff buy-in. This will involve engaging stakeholders and listening to the concerns they might have. The ideal forum for this would be presenting the findings of this report to EE council and soliciting feedback for steps forward. This presentation should highlight how changes to end of course surveys could lead to improvements across EE. The current surveys are trying to collect feedback for many different aspects of the course and explaining how the course will be evaluated from a holistic perspective may help with anxiety of staff.

**Ethics, Privacy, and University Policies**

Ethical considerations should be documented and eventually presented to EE council. Any changes to the assessment of our programs should align with university policies.

**Explore additional tools**

Learner analytics could be used to supplement EE program evaluation. A review of the data we currently collect has been completed in a previous report. The Assessment lead should begin to explore connections to Program Assessment plans and quality assurance practices that are being developed.  There are different tools available that can perform text-analysis. A detailed review and comparison of tools should be conducted. This review should look at features, cost, conditions of the user-license agreement, privacy of EE data, and ease of integration.

**Pilot Text-Analysis of Portfolios and Reflections**

We have found that our surveys have a low-response rate. Text-analysis however opens up new sources of data that can aid in program evaluation. Due to the applied nature of continuing education many of our courses feature applied projects with portfolios and reflections. Useful insights about how a course is functioning could be pulled from this data.

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