



MEMORANDUM

To: Executive Committee of Faculty Council (October 5, 2020)
Faculty Council (October 23, 2020)

From: Professor Ken Tallman
Chair, Teaching Methods and Resources Committee

Date: October 16, 2020

Re: Proposed Changes to Course Evaluation Divisional Items

REPORT CLASSIFICATION

This is a major policy matter that will be considered by the Executive Committee for endorsing and forwarding to Faculty Council for vote as two regular motions (each requiring a simple majority of members present and voting to carry).

PROCESS AND CONSULTATION

With the goal of improving the student evaluation of teaching (SET) at the Faculty of Applied Science and Engineering, the Teaching Methods and Resources Committee (TMRC) has reviewed the FASE Divisional Items in the Course Evaluations.

The TMRC has reviewed and approved the motions in this report. TMRC is comprised of undergraduate and graduate students, faculty representatives from each engineering undergraduate program, Engineering Science, ISTEP, and an alumni member. As well, TMRC has representation from the Registrar's Office, the Engineering Education Technology Office, the Engineering and Computer Science Library, the Vice-Dean, Undergraduate, and the Vice-Dean, First Year.

In forming our motions, TMRC consulted 1) the Centre for Teaching Support & Innovation (CTSI); 2) Chairs and Directors; and 3) the Engineering Society. Additionally, TMRC conducted a survey of FASE faculty and students; conducted a student focus group; analyzed other U of T Faculties' Course Evaluation Items; and surveyed literature studying course evaluations.

Based on the TMRC's discussion and its consultation and research described in Appendix 1, the committee recommends Faculty Council vote in support of Motion 1 and Motion 2.

MOTION 1 FOR FACULTY COUNCIL

THAT the following change to the Faculty's Divisional Item 3, as described in Appendix 1 to Report 3663 Revised, be approved effective October 2020.

- Remove Div.3: "The course expanded my understanding of the ethical and environmental issues concerning engineering in society."
- Replace with X-1: U of T Course Evaluation Item Bank: "Compared to other courses, the workload for this course was:"

MOTION 2 FOR FACULTY COUNCIL

THAT the following change to the Faculty's Subset Items for Lab-Based, Lecture-Based, and Project-Based Courses, as described in Appendix 1 to Report 3663 Revised, be approved effective October 2020.

- Remove Subset Items for Lab-Based, Lecture-Based, and Project-Based Courses.
- Replace with modified Subset Lecture-Based Item: "The course instructor delivered the course material in a clear and organized manner."

Faculty of Applied Science and Engineering**Teaching Methods and Resources Committee*****Proposal for Revising Divisional Items in Course Evaluations******May 11, 2020******Revised Oct 19, 2020*****1.0 MOTIVATION**

In Fall 2019, The Teaching Methods and Resources Committee (TMRC) voted to review the FASE Divisional Items in the Course Evaluations. The committee decided on this review for three reasons: 1) over five years had passed since the Divisional Items had been introduced, and a review was now due, 2) some items (questions) appeared to provide little guidance for instructors seeking relevant and actionable feedback or for administrators seeking useful data, and 3) some items appeared to overlap with others, creating unwanted redundancy in an already demanding evaluation form.

2.0 PURPOSE OF COURSE EVALUATIONS

According to [1], student evaluation of teaching (SET) serves three purposes: “(a) improving teaching quality, (b) providing input for appraisal exercises (e.g., tenure/promotion decisions), and (c) providing evidence for institutional accountability (e.g., demonstrating the presence of adequate procedures for ensuring teaching quality).” Thus, as SET serves multiple stakeholders, some questions will better meet the needs of different stakeholders. For instance, instructors, wanting formative feedback, will tend to favour “multidimensional” questions that address particular aspects of their teaching and their courses, e.g., the quality of course organization and feedback to students. Administrators and institutions, on the other hand, will use SET results for more summative purposes, looking for “unidimensional” and “global” items that measure overall performance [2].

3.0 INSTITUTIONAL ITEMS

The eight Institutional Items, asked of all U of T students, also include an Institutional Composite Mean, a mathematical average of the first five items. Unlike the Divisional Items, the Institutional Items include two open-ended questions, allowing students to provide detailed feedback.

1. I found the course intellectually stimulating.
2. The course provided me with a deeper understanding of the subject matter.
3. The instructor created a course atmosphere that was conducive to my learning.
4. Course projects, assignments, tests and/or exams improved my understanding of the course material.

5. Course projects, assignments, tests and/or exams provided opportunity for me to demonstrate an understanding of the course material.
6. Overall, the quality of my learning experience in this course was ...
7. Please comment on the overall quality of the instruction in this course. [open-ended]
8. Please comment on any assistance that was available to support your learning in this course. [open-ended]

While the Institutional Items are set by the University, and are thus outside the TMRC review, the TMRC recognizes that the Divisional Items must work in harmony with the Institutional Items.

4.0 DIVISIONAL ITEMS

The focus for the TMRC review were these seven Divisional Items and the three additional subset items for lab-based, lecture-based, and project-based courses.

1. The course helped me improve my ability to formulate, analyze and solve problems.
2. The instructor related course concepts to practical applications and/or current research.
3. The course expanded my understanding of the ethical and environmental issues concerning Engineering in society.
4. The instructor explained how the course concepts related to other courses.
5. The feedback I received on tests, assignments, labs, and/or projects provided guidance on how to improve my understanding of course materials.
6. The instructor explained what students are expected to learn in the course.
7. What is your overall rating of the instructor as a teacher?
 - Lab-Based Courses: The laboratory enhanced my understanding of science and/or engineering concepts.
 - Lecture-Based Courses: The instructor used appropriate means to deliver the material in a clear and organized manner.
 - Project-Based Courses:
 1. The instructor encouraged innovation in the project.
 2. The course provided opportunities to improve communication skills.

The Centre for Teaching Support and Innovation (CTSI) provided TMRC the following guidelines for shaping our recommendations: TMRC could recommend to add one item to the existing Divisional Items without removing another; TMRC could recommend to remove any items without necessarily replacing them; and TMRC could recommend replacement items drawn from the existing U of T Course Evaluation Item Bank or recommend items newly created or modified from the Item Bank by the TMRC in consultation with CTSI.

5.0 RATIONALE FOR TMRC RECOMMENDATIONS

Report 3663 to Faculty Council includes two motions. Motion 1 recommends the removal of Div. 3, replacing it with X-1. Motion 2 recommends the removal of the subset items for lab-based, lecture-based, and design-based courses, replacing these with a slight modification of the lecture-based subset item.

5.1 Motion 1

- **Remove Div.3:** “The course expanded my understanding of the ethical and environmental issues concerning engineering in society.”
- **Replace with X-1:** U of T Course Evaluation Item Bank: “Compared to other courses, the workload for this course was:”

The recommendation to remove Div. 3 was based largely on results from the TMRC Survey of the Divisional Items, January 16-23, 2020. In this online survey, students and faculty were asked to rank the Divisional Items on a scale of 1 to 10 to indicate “how appropriate you feel the question is for use in the course evaluations for all engineering courses.” Students and faculty overwhelmingly ranked Div.3 as the least appropriate of the Divisional Items (Appendix A). Students and faculty, in their open-ended comments, uniformly agreed that this item lacked relevancy in many courses (Appendix B). The committee noted that instructors or Departments wanting an item of this type could choose one from the U of T Course Evaluation Item Bank as a Departmental-Type Item or as an Instructor-Selected Item.

The recommendation to replace Div. 3 with X-1 was based on 1) the valuable information X-1 provides for administrators; 2) the attention it received in the TMRC Survey of Divisional Items, January 16-23 (Appendix B); and 3) the fact that many Faculties at U of T include this in their Divisional Items, seeing its value, TMRC conjectured, particularly for administrators. For comprehensive information on the U of T course evaluation system and framework, including a listing of all Faculties’ Divisional Items, visit <https://courseevaluations.utoronto.ca>.

5.2 Motion 2

- **Remove Subset Items** for Lab-Based, Lecture-Based, and Project-Based Courses
- **Replace with modified item from Lecture-Based Subset:** “The course instructor delivered the course material in a clear and organized manner.”

TMRC’s recommendation to remove the subset items was based on two factors: 1) not all courses can easily be defined as belonging to one these three subsets, and 2) the subsets add a third layer to an already demanding course evaluation survey. As well, TMRC noted that instructors, should they desire, may include an item that addresses one of these subsets in their Instructor-Selected Items.

In the place of these subset items, TMRC recommends the single item “The course instructor delivered the course material in a clear and organized manner,” a slightly modified version of the Lecture-Based Subset item. This replacement item has two particularly positive qualities: 1) it provides an additional “instructor” based item, providing better balance with the “course” based items in the Institutional and Divisional Items, and 2) it draws attention to two important teaching qualities not identified in any of the Institutional or Divisional Items: clarity and organization.

6.0 CONCLUSION

TMRC recommends Faculty Council support Motion 1 and Motion 2.

Motion 1 removes Div. 3, an item singled out by students and faculty as relevant to only select courses, replacing it with X-1, an item used by other Faculties at U of T for its value to both instructors and administrators.

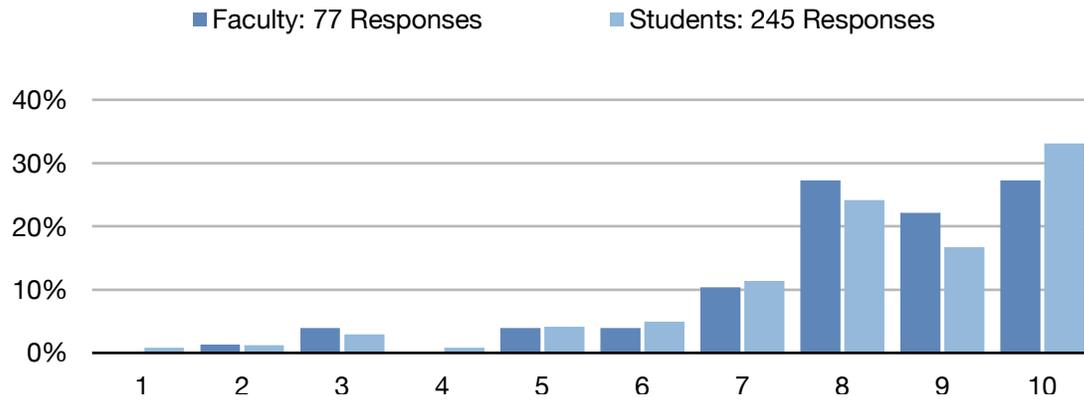
Motion 2 simplifies the evaluation form by replacing the three subset items with a single item.

7.0 LIST OF REFERENCES

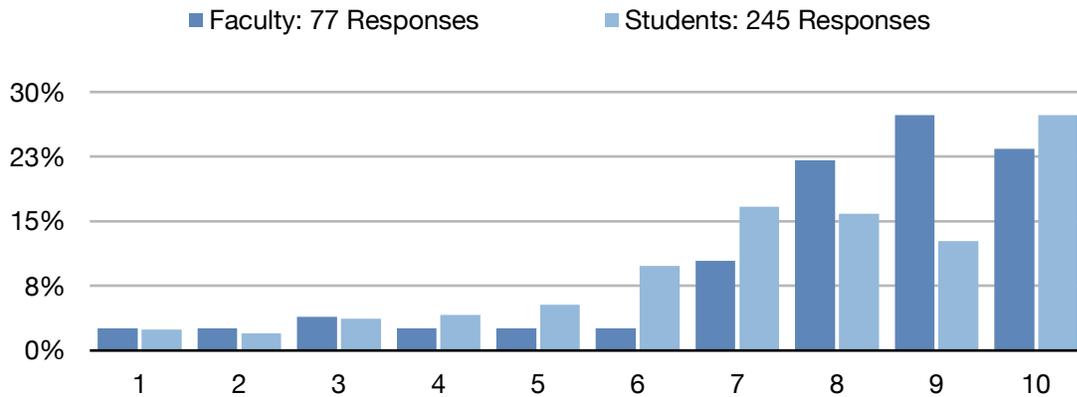
1. Spooren, P., Brockx, B., & Mortelmans, D. (2013). On the validity of student evaluation of teaching: The state of the art. *Review of Educational Research, 83*(4), 598-642.
2. Abrami, P. (1989). How should we use student ratings to evaluate teaching? *Research in Higher Education, 30* (2), 221-227.
3. Frey, P. W. (1978). A two-dimensional analysis of student ratings of instruction. *Research in Higher Education, 9* (1), 69-91.

Appendix A: TMRC Survey of Divisional Items, January 16-23 2020 Results

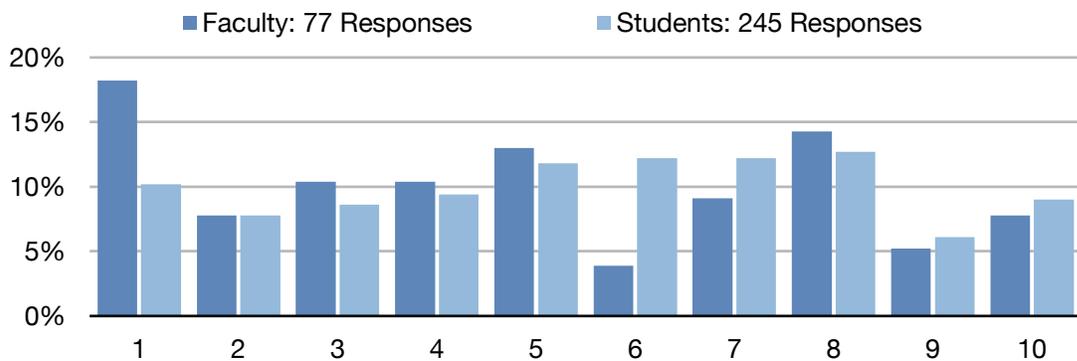
Q1: The course helped me to improve my ability to formulate, analyze and solve problems.



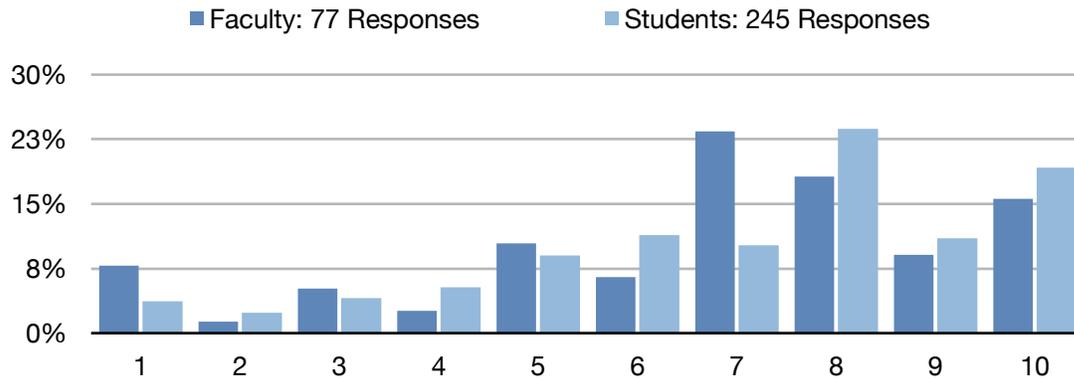
Q2: The instructor related course concepts to practical applications and/or current research.



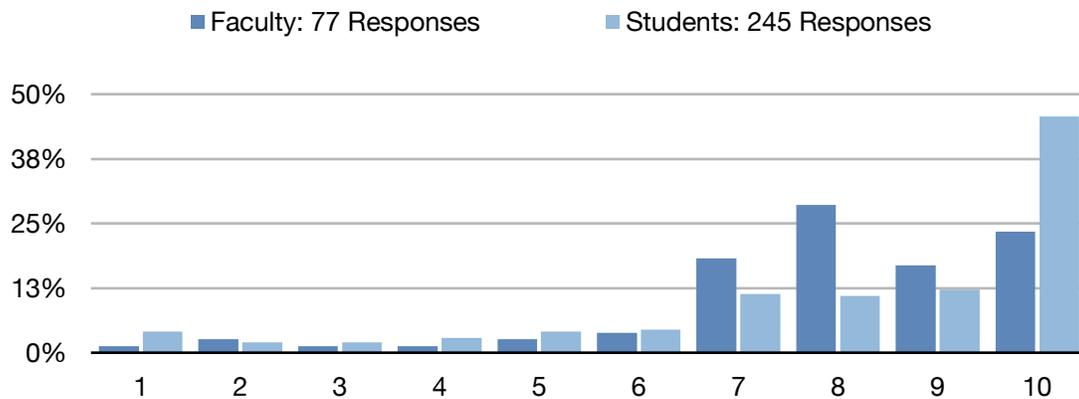
Q3: The course expanded my understanding of the ethical and environmental concerning engineering in society.



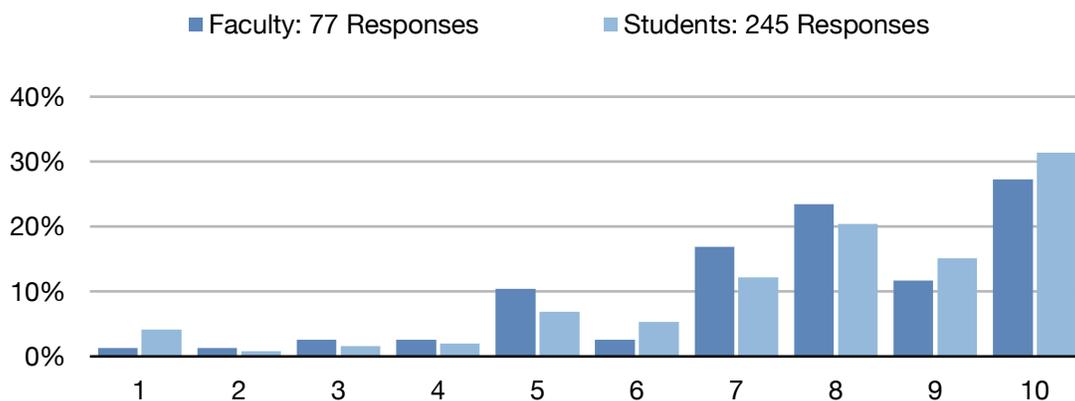
Q4: The instructor explained how the course concepts related to other courses.



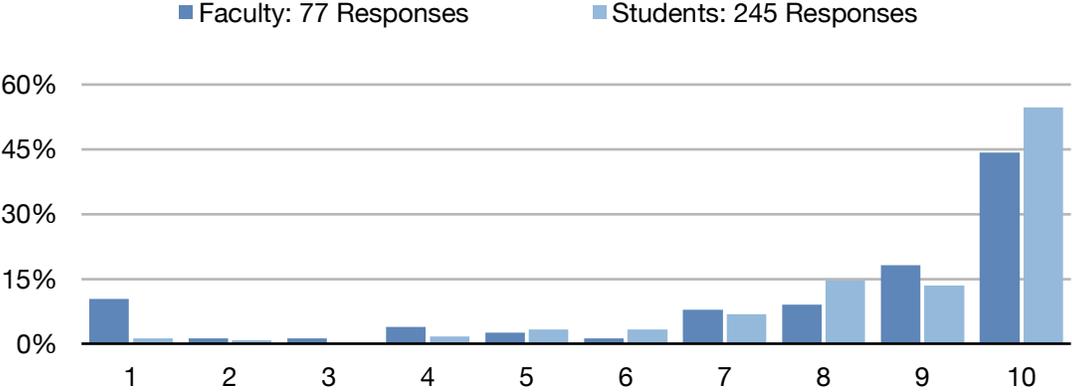
Q5: The feedback I received on tests, assignments, labs, and/or projects provided guidance to improve my understanding of course materials.



Q6: The instructor explained what students are expected to learn in the course.



Q7: What is your overall rating of the instructor as a teacher?



Appendix B: TMRC Survey Faculty and Student Comments

As part of the January 16-23 survey, we asked faculty and students two open-ended questions. Below is a selection of representative responses.

1. "Please comment on the reasoning behind any of the ratings you provided."

Student Responses:

- "The course expanded my understanding of the ethical and environmental issues concerning engineering in society." - I gave 2/10, because it could be useful for some courses which have intensive practical aspects (such as ESP, Design project), but not relevant for the courses which are teaching theories (such as programming fundamentals).
- Couldn't really relate most course material to environmental/social issues, maybe because we study BAsC.
- Ethics and environmental related issues are not relevant for all courses (i.e. differential equations and other math heavy courses), only actually useful for project-based courses.
- Honestly, if an instructor doesn't explicitly state in the syllabus why this course matters for other courses then I don't care if it somewhat semi-relates down the line.
- I don't think it is fair for math professors to be expected to tie their work to ethics/ the environment. I think this is fair for design courses etc., but for some of the theoretical math courses, it is not possible given the amount of content needing to be taught in a short time.
- I feel that the elements of the way a course is structured and planned out should be kept different from the way the professors teach and guide the students while collecting the feedback. I feel that they are two very separate things.
- I think it's super important to link the concepts we are learning in the classroom with real-life applications/research that is currently going on. At the same time, I'm not sure how linking classes together has a positive impact on what the professor is teaching - mentioning which concepts are taken from which classes might be helpful, or which future classes would build on the topics that are currently being taught, but I'm not sure we need such a big focus on this. I think asking questions about the instructor is very important, but I think they could be phrased better. Also, I feel as if the ethics/environmental question is not relevant to all the courses and shouldn't be mandatory for all of them.
- Not every course will aid in problem solving (ie APS100), and many of the courses don't significantly increase problem solving ability. However, feedback and expectations are integral to growth: if you aren't given correct feedback you can never improve, thus having courses with good feedback is essential. Similarly, a lack of clear expectations makes starting a problem very difficult: much more than what it needs to be.
- Overall rating could potentially just be biased towards one's personal opinion of the prof, instead overall rating should just be calculated (e.g. average or weighted average) of the other responses.

- Professors seem to rarely actually connect their courses to other courses, and I'm not sure how important that even is to determining the quality of the course. Also, we are rarely given much feedback in any course assignments/exams...
- Talk about real world experience. Talk about being able to explain things concisely. Talk about teaching ability. I honestly don't care how this course applies to other courses and I really don't see why that would apply to anything
- The course evaluations need to be less wordy. I understand courses can connect to research, other courses, and ethics, but most courses simply don't and that's okay because they don't need to. To me those questions are meaningless.

Also, the open-ended questions are worded very poorly and I'm always confused what I'm expected to write in them

- Think the most important feedback for courses should be focused on how well the course is able to set you up in that area. For example, after taking this course, how confident are you in your ability to apply these concepts to the real world?

Faculty Responses:

- All of the questions that are written in a way that allows for targeting the instructor (rather than course design, course delivery, etc) allow for unconscious bias to creep in. It would really help out female and URM instructors if the questions were written in a way that excluded the term 'instructor' but still captured the concept of the question. This is pretty straight forward to do for all of the questions listed that have the word 'instructor' in them.
- Ethics and environment are grouped - students in my classes don't differentiate between the two, as far as I can tell. The resulting question lacks clarity, and students (at least in my experience) give very low scores - which is fine, it just doesn't help me to know if i'm properly addressing ethics (because talking about the environment doesn't really make sense for my courses).
- Ethics are not part of any of my courses.
- Usually it's on the first day of the semester that the course's relevance and its connection to other courses were communicated to students. Those kind of references will only be made sparsely throughout the term when appropriate. So when you ask those kind of question at the end of the semester, most students would have little or nothing to say about it.
- I do not feel that comparisons to other courses should be assessed, unless the course under consideration is a prerequisite for another course. Also, not all courses have an environmental/ethical component; this question should be included only for pertinent courses
- I think all of the questions are well chosen and specific enough to elicit actionable feedback EXCEPT the poorly designed question on overall quality of the instructor. This item was retained from the previous course evaluation scheme primarily because Department Chairs said they needed to have continuity of information to evaluate instructors. We now have sufficient data with the current system to ensure that continuity of instructor evaluation

- I think all questions are very much on track and issues we should be concerned with. I know the final question is controversial to the purists but I have not been persuaded it is inappropriate
- Question 3 is not applicable to some courses such as mathematics, physics, etc. Question 4 is not applicable in many cases when concepts taught are standalone.
- Questions related to clarity/meeting objectives of the course are very relevant, as are those relating course material to the larger curriculum; questions getting into more specific details about course material (which assume homogeneity across all engineering courses) less so. The question rating the professor is inappropriate; studies have shown that the question says less about teaching effectiveness than about students' bias based on gender, race, etc.
- Rating of professors rather than learning is full of biases. The question on problem solving promotes rote learning. Questions around designing or creating would be more appropriate
- The "overall rating" of the instructor is much too vague for students - this question can easily become a popularity contest, e.g., the instructed material was hard, therefore we hate the instructor...
- The final question is addressed by the University questions - and could be eliminated.
- I argue that many students will perceive the number of questions as excessive, and answer them superficially, reducing the quality of the feedback and ratings we receive. I believe that 5-8 well-formulated questions (in total) would be sufficient and gather more effective feedback.
- The overall teacher question is not validated and has too many facets. Students cannot give a good answer to that as they can confuse likeability with teaching ability and other such confounding factors.
- There is a lot of potential for bias especially towards instructors who identify as female and/or are visible minorities. I feel strongly that the last question which rates the instructor should be dropped.

Question 2: "Are there other aspects of teaching and learning that you would like to include in the course evaluation?"

Student Responses:

- A question asking about the atmosphere the professor created in class, and if they created opportunities for the class to interact or openly ask questions.
- Amount of new material that you learned.
- Relating course concepts to job experience/ PEY experience.
- Can this course be improved? what else can we incorporate or remove into the syllabus that would improve the learning
- clarity and organization
- Does the professor care about students' learning in their class?
- The marks I received in the course felt fair and justified.
- The instructor was passionate about the course.
- How clear is your instructor when explaining ideas etc?

- How relevant the course is to your chosen discipline/career path rather than just how intellectually stimulating it is
- The school must do more to employ professors who actually want to teach.
- some instructors may have good lectures, but the tests and exams reward memorization over understanding concepts.
- I think there should be something about how well the course was organized.
- I would like the questions to be more actionable and have takeaways that the profs can improve on.
- Instructor should try explaining every concept in layman terms so that a non-expert can understand.
- The "quality of instruction" question is vague and confusing. I never know what exactly the "quality of instruction" means and usually use that section rant about the course.
- Is lecture content introduced in a structured, well-paced way? Is there continuity between lectures? Are lectures clear and understandable?
- Sometimes teachers are nice and support learning but they can't teach. Or they just don't teach in an organized direct way.
- Timeliness of marking or responding to questions.

Faculty Responses:

- Heavy course load, which previous generations accepted and leveraged to advance their learning, is now a lethal weapon used against instructors. Perhaps the solution is not to alter the evaluation criteria but to admit undergrad students more selectively.
- Did you feel that the course was run in a clear and efficient manner?
- How high was the workload of this course as compared to other courses you have taken in the same semester?
- I would like the course reviews to serious take into account bias (towards gender, skin colour and accent) in its design.
- Institutional questions 6 and 7 and divisional question 7 are very close and highly correlated (I'd assume, again, since the wording is very close). I would prefer if the divisional questions actually asked more granular things - "The pacing of the course was suitable and allowed students with different levels of knowledge to succeed." Or "the instructor effectively used lecture time..". Or "Lecture materials were appropriate for the material." Some of these are included in other sections or can be selected. Help me to determine which parts I'm getting right and which parts need improvements or changes.
- It would be good to add some information to the evaluation reports sent back to instructors on the impact of class size on average scores. From the course evaluation analysis completed last year by the university, it was clear that course size has a significant impact on average course evaluation scores (0.5/5 change from small courses to large courses). Including this information on the course evaluation report would be helpful. I teach some small and some large courses, so adding this information would help me interpret my scores better.

- No. Not because there aren't other aspects worth exploring, but because we need to resist the urge to ask more questions of our students. Like this survey, course evaluations should be quick and allow for freeform expansion.
- There seems a need to find out the student's workload in a course.
- There should be less questions, not more. Students can elaborate in the free-form fields on specific aspects of teaching and learning.
- Ways to help instructors provide actionable feedback.