

# Transforming Student Evaluations of Instruction at UBC

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# TERRITORIAL ACKNOWLEDGEMENT

I would like to acknowledge UBC's Okanagan campus is located on the ancestral, traditional and unceded territories of the Syilx Okanagan Nations.

And I would like to acknowledge that here in Chicago, we are gathered on the traditional Territories of the Three Fire Peoples - the Ojibwe, Odawa and Bodewadmi.



# WHO AM I

Higher Education Scholar (now)  
Medieval Historian (originally)

Teacher

Associate Provost, Academic Programs, Teaching and  
Learning  
(UBC, Dalhousie, USask, UAlberta)

Father and Husband  
(Métis and European ancestry)



# About the University of British Columbia



**Consistently ranked top 50 globally in international rankings**  
**\$773.7 million in external research**  
**\$3.4 billion consolidated budget**

## **UBC Vancouver:**

**47,400 undergraduate students**  
**10,806 graduate students**  
**28.6% international students**  
**2.5% Indigenous students**  
**6,466 faculty members**

## **UBC Okanagan:**

**10,806 undergraduate students**  
**1,183 graduate students**  
**21.8% international students**  
**6% Indigenous students**  
**668 faculty members**



# Student Evaluations at UBC: Before



# Student Evaluations at UBC: Before



## UBC Vancouver:

### Used 6 universal questions:

1. The instructor made it clear what students were expected to learn.
2. The instructor helped inspire interest in learning the subject matter.
3. The instructor communicated the subject matter effectively.
4. Overall, evaluation of student learning (through exams, essays, presentations, etc.) was fair.\*
5. The instructor showed concern for student learning.
6. Overall, the instructor was an effective teacher.

## UBC Okanagan:

### Used 19 universal questions, including:

1. The instructor set high expectations for students.
3. The instructor encouraged student participation in class.
4. The instructor fostered my interest in the subject matter.
5. The instructor effectively communicated the course content.
7. The instructor provided effective feedback.
19. I would rate this instructor as very good.

# OVER - ARCHING QUESTIONS



*(How) Can we better support the interpretability of the Student Evaluation data for faculty and academic leaders?*

*(How) Can we redesign Student Evaluation questions from a student-centred / research-based perspective?*

# Senate Taskforce on Student Evaluations



1. Interrogate anonymized UBC SEoT data, to determine if there is evidence of potential biases.
2. Review and assess the recent literature on the effectiveness of SEoT, with particular reference to potential sources of bias in evaluations.
3. Review the existing University questions used in SEoT in light of the data and available literature, recommending changes where appropriate.
4. Propose recommendations for appropriate metrics, effective analysis and presentation of data to support SEoT as a component of teaching evaluation.
5. Consider the implications any proposed changes may have on other components of teaching evaluation.



# Senate Taskforce on Student Evaluations



Made 16 Recommendations for advancing Student Evaluations at UBC, including:

- Rename “Student Evaluations of Teaching” to “Student Experience of Instruction”
- Revise the current questions in use on the Vancouver campus, and support the transition of the Okanagan campus to the new, revised questions
- Improve the reporting on Student Evaluations to support interpretability by faculty members and academic leaders

# A Common Approach to Reporting on SEoI Data



# Student Evaluations at UBC



How do we represent our institutional data (to individuals and at the unit/institution level) to support interpretability?



# Student Evaluations at UBC



How do we represent our institutional data (to individuals and at the unit/institution level) to support interpretability?

- Response Rate
- Dispersion Index
- Interpolated Median
- Percentage Favorable

[seoi.ubc.ca/resources](https://seoi.ubc.ca/resources)

# Response Rates

Recommended minimum response rates for a given class size depend on the confidence level desired in the data and its margin of error.

Recommended rates are based 80% confidence level and a 10% margin of error for SEI responses.

Class Size	Recommended Minimum Response Rates based on 80% confidence & $\pm 10\%$ margin
$\leq 10$	75%
11 -19	65%
20 -34	55%
35 - 49	40%
50 -74	35%
75 -99	25%
100 -149	20%
150 - 299	15%
300 - 499	10%
$\geq 500$	5%

# Dispersion Index

The dispersion index is a measure of variability suitable for ordinal data such as that from SEI.

- Dispersion Index ranges from 0 to 1
- A value of 0 indicates that all respondent students in the section rated their experience of instruction the same.
- A value of 1 is obtained when the class splits evenly between the two extreme values (Strongly Disagree & Strongly Agree).
- In UBC SEI data, the dispersion index rarely exceeds 0.7, and such high dispersion is often found in SEI that did not meet the minimum recommended response rate.



# Percent Favorable

Consider the distribution of students' responses in two course sections, (A) and (B)

In section (A) there are five favourable responses out of a total of 12 responses (5/12 or **42%**)

In section (B) there are eleven favourable responses out of a total of 15 responses (11/15 or **73%**)

<b>A</b>		<b>B</b>	
Scale Value / Rating	Number of students selected (Frequency)	Scale Value / Rating	Number of students selected (Frequency)
1 <i>strongly disagree</i>	0	1 <i>strongly disagree</i>	3
2 <i>disagree</i>	1	2 <i>disagree</i>	1
3 <i>neutral</i>	6	3 <i>neutral</i>	0
4 <i>agree</i>	4	4 <i>agree</i>	9
5 <i>strongly agree</i>	1	5 <i>strongly agree</i>	2
<i>Total number of Respondents:</i>	12	<i>Total number of Respondents:</i>	15

# Interpolated Median



A		B	
Scale Value / Rating	Number of students selected (Frequency)	Scale Value / Rating	Number of students selected (Frequency)
1 <i>strongly disagree</i>	0	1 <i>strongly disagree</i>	3
2 <i>disagree</i>	1	2 <i>disagree</i>	1
3 <i>neutral</i>	6	3 <i>neutral</i>	0
4 <i>agree</i>	4	4 <i>agree</i>	9
5 <i>strongly agree</i>	1	5 <i>strongly agree</i>	2
<i>Total number of Respondents:</i>	12	<i>Total number of Respondents:</i>	15

Recall:

- The two distributions, though markedly different, have the same mean score “average” of 3.4
- Their respective percent favourable were 42% and 73%

# Interpolated Median

The interpolated median is an “Adjusted median”

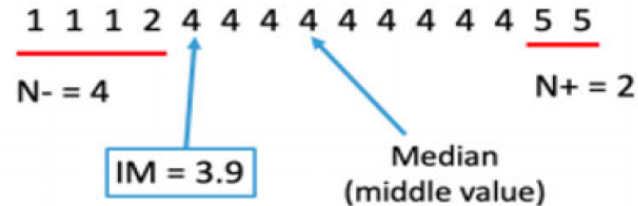
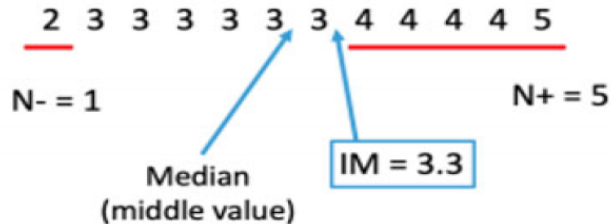
It takes into account:

- The number of responses less than the median
- The number of responses greater than the median
- The number of responses equal to the median.

$$IM = M + (n_+ - n_-)/2n$$

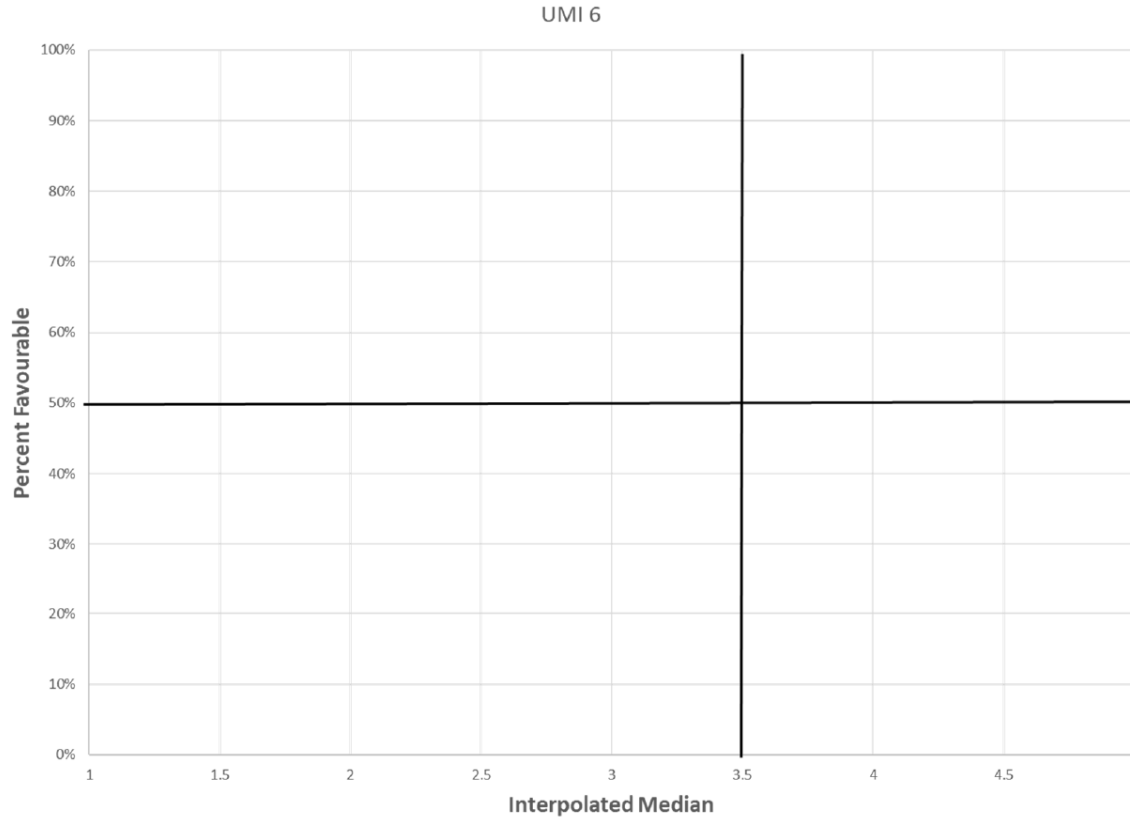
Where:

- IM = the Interpolated Median
- M = the Median
- n = number of data points equal to the median
- n<sub>+</sub> = number of data points greater than the median
- n<sub>-</sub> = number of data points less than the median

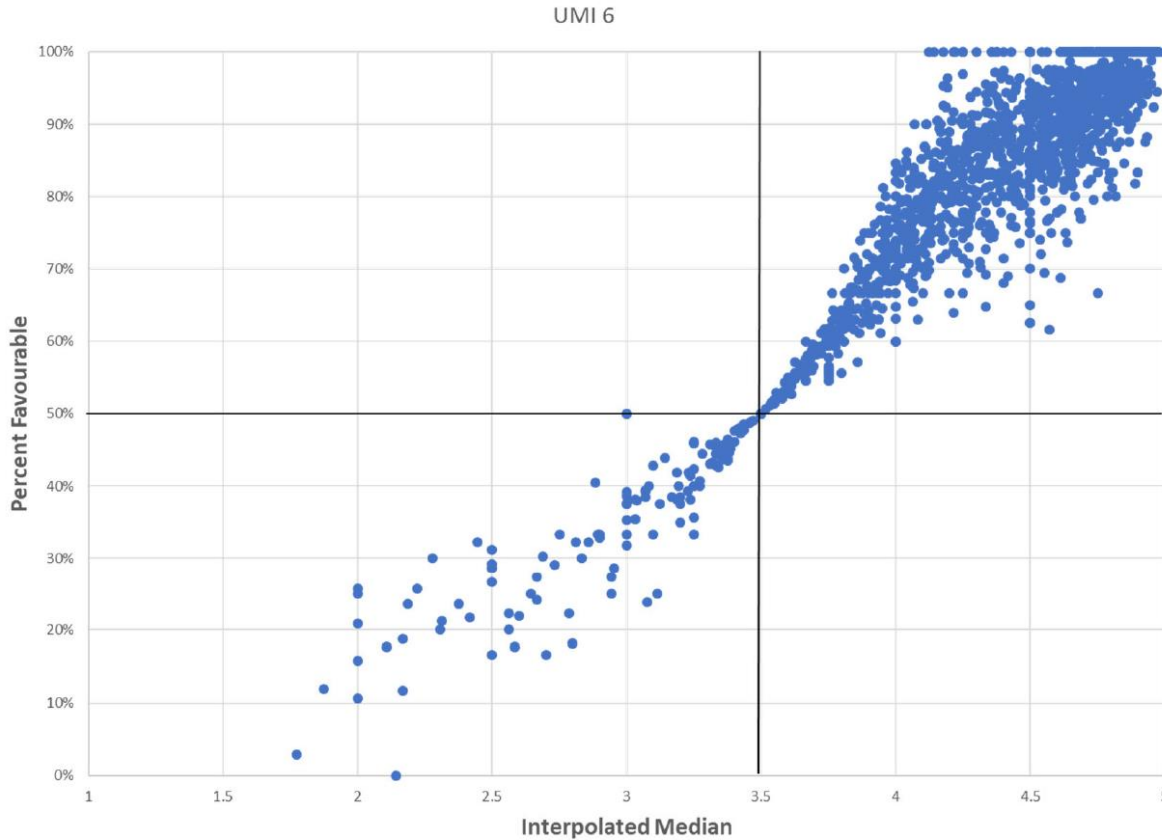




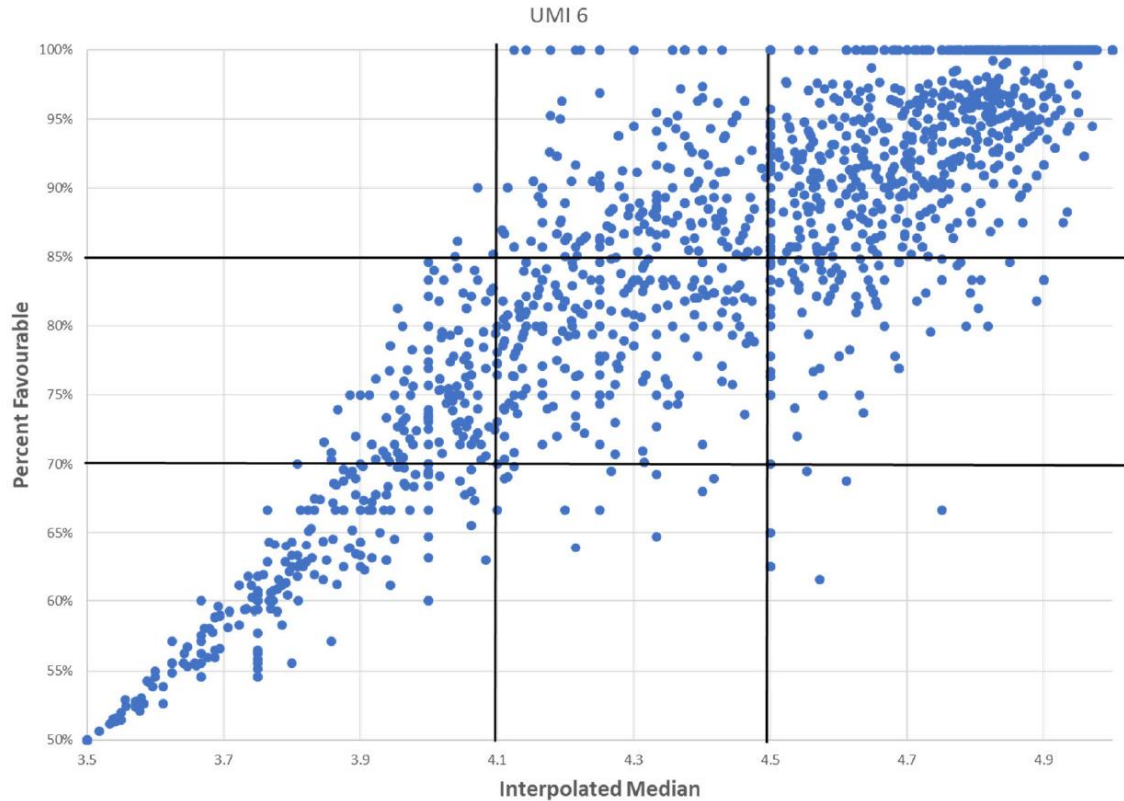
# Interpolated Median and Percent Favorable



# Interpolated Median and Percent Favorable



# Interpolated Median and Percent Favorable



# Reporting within Blue



## University Module Questions

### University Module Questions

Question	N	n	SD	D	N	A	SA	N/A	IM	DI
Throughout the term, the instructor explained course requirements so it was clear to me what I was expected to learn.	40	16	2	0	3	4	7	0	4.3	0.7
The instructor conducted this course in such a way that I was motivated to learn.	40	15	2	1	1	3	8	0	4.6	0.7
The instructor presented the course material in a way that I could understand.	40	16	1	0	4	3	8	0	4.5	0.6
Considering the type of class (e.g., large lecture, seminar, studio), the instructor provided useful feedback that helped me understand how my learning progressed during this course.	40	16	1	2	1	4	8	0	4.5	0.6
The instructor showed genuine interest in supporting my learning throughout this course.	40	16	1	0	0	2	13	0	4.9	0.3
Overall, I learned a great deal from this instructor.	40	16	2	1	2	2	9	0	4.6	0.7

Question	%Favourable
Throughout the term, the instructor explained course requirements so it was clear to me what I was expected to learn.	69%
The instructor conducted this course in such a way that I was motivated to learn.	73%
The instructor presented the course material in a way that I could understand.	69%
Considering the type of class (e.g., large lecture, seminar, studio), the instructor provided useful feedback that helped me understand how my learning progressed during this course.	75%
The instructor showed genuine interest in supporting my learning throughout this course.	94%
Overall, I learned a great deal from this instructor.	69%



# A Student-Centred / Research-Based Approach to Revising SEoI Questions

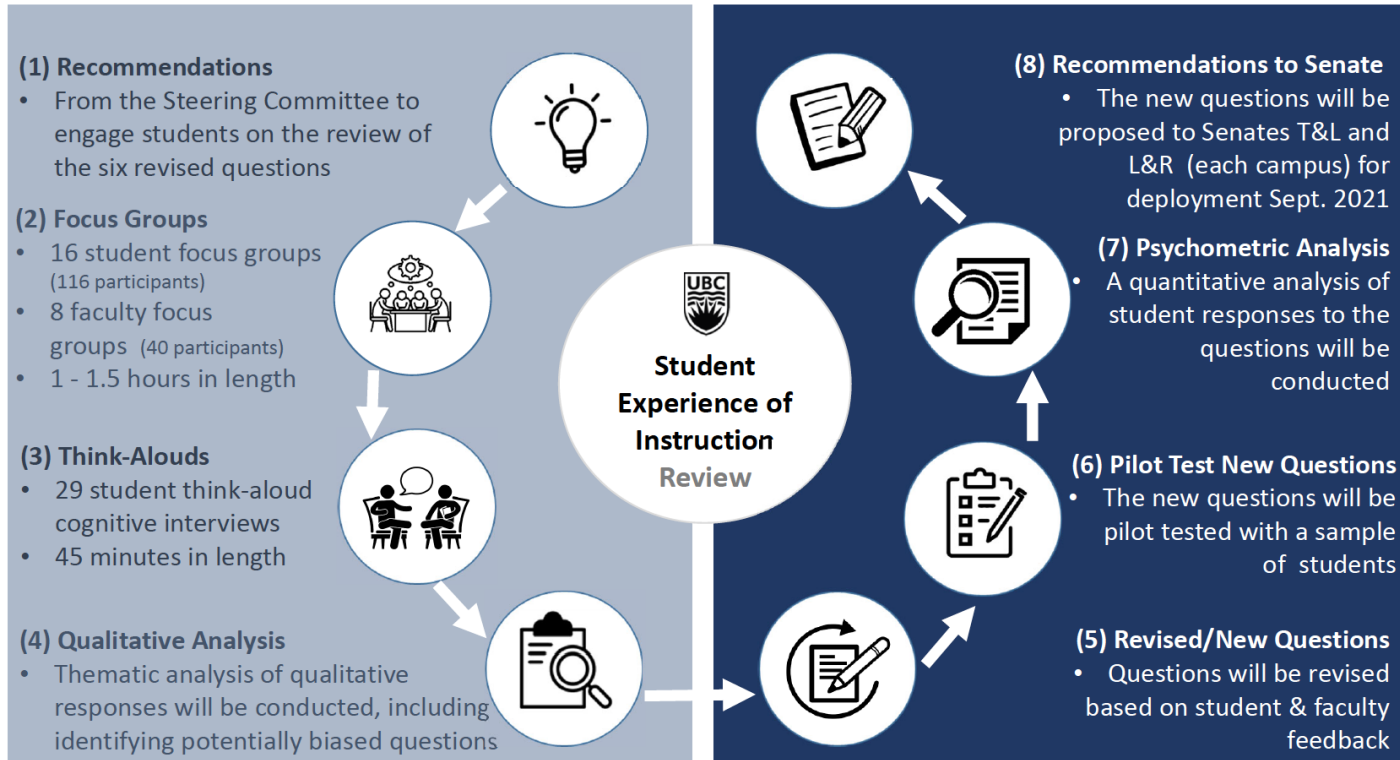


# Student Experiences of Instruction at UBC



How do we revise the SEoI questions from a student-centred and research-based lens?

# Revising SEol Questions



# Revising SEol Questions



## PROPOSED UMI QUESTIONS – from Senate Taskforce

1. The instructor made it clear what I was expected to learn.
2. The instructor engaged me in the subject matter.
3. I think that the instructor communicated the subject matter effectively.
4. I have received feedback that supported my learning.
5. I think that the instructor showed concern for student learning.
6. Overall, this instructor was effective in helping me learn.





# Student Focus Groups

- What is your understanding of the question?
- How would you respond? Does your response reflect the change in the question?
- Is this question confusing? Are there any words which need further defining or is there a better word to use? Do you think students could interpret this question differently from each other? Can you think of anyone who might be able to interpret this question differently from you?
- Would you interpret this question differently if you were enrolled in a small class compared with a large class?
- Would you interpret this question differently if you were enrolled in [subject] compared with [subject]?

# Faculty Focus Groups



We asked faculty participants to provide insight on how they interpreted the proposed questions and their thoughts on how students would understand and respond to the questions.

We also collected suggestions on how to reword the questions.

# Student Think-Alouds



- What do you think this question is asking you?
- What are you thinking about while you are considering your response?
- What does the question mean to you when thinking about your experiences? Do you have any examples in mind?
- Are you thinking about something other than the question?
- Is there anything about the question that is confusing? What is it?
- Is the question vague?
- Are you able to answer the question easily?
- How did you arrive at your answer?
- Do the response options capture your answers appropriately? If not, how would you want to respond?

# Qualitative Thematic Analysis



All focus-group sessions and interviews were digitally recorded and transcribed for further analysis.

Participant comments were analysed to identify patterns of meaning, and organized into general themes.

The themes were further refined and coded to aid in the interpretation of the data



# Revising SEol Questions



## NEW UMI QUESTIONS

1. Throughout the term, the instructor explained course requirements so it was clear to me what I was expected to learn.
2. The instructor conducted this course in such a way that I was motivated to learn.
3. The instructor presented the course material in a way that I could understand.
4. Considering the type of class (e.g., large lecture, seminar, studio), the instructor provided useful feedback that helped me understand how my learning progressed during this course.
5. The instructor showed genuine interest in supporting my learning throughout this course.
6. Overall, I learned a great deal from this instructor.

# Pilot Testing the Questions



Table 1.a Distribution of Pilot Survey Responses by Student Demographics

<u>Focus group participant</u>	<u>Number of responses</u>		
Yes			156
No			177
<u>Gender</u>	<u>Number of responses</u>		
Female			232
Male			73
<u>Campus</u>	<u>Number of responses</u>		
Okanagan			244
Vancouver			79
<u>Residency</u>	<u>Graduate</u>	<u>Undergraduate</u>	<u>Total</u>
Domestic	19	254	273
International	17	32	49
Total	36	286	322

# Pilot Testing the Questions



**Table 1.b Distribution of Pilot Survey Responses by Year Level, Class Size and Course Requirement**

<u>Year level</u>	<u>Number of responses</u>
1 <sup>st</sup>	44
2 <sup>nd</sup>	86
3 <sup>rd</sup>	92
4 <sup>th</sup>	80
5 <sup>th</sup>	21

<u>Self-reported Class size</u>	<u>Number of responses</u>
1 – 49	85
20 – 99	70
100 – 199	98
200+	80

<u>Course</u>	<u>Number of responses</u>
A requirement	209
An elective	124

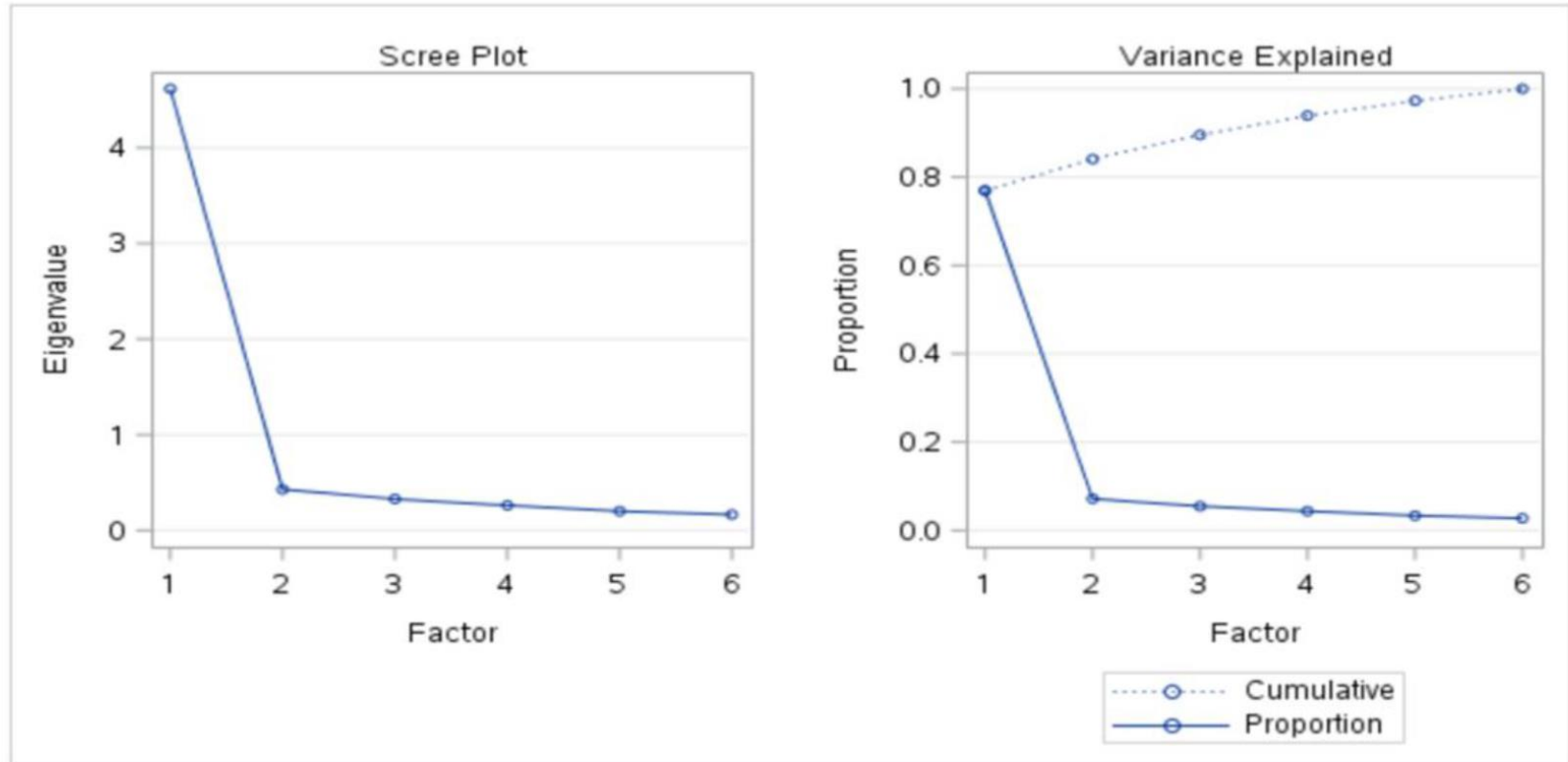
# Item Response Theory



- 1) unidimensionality of the measured trait;
- 2) local independence of the survey items;
- 3) monotonicity; and
- 4) item invariance.



# Factor Analysis on Items



# Pilot Testing the Questions



Table 2: Differential Item Functioning (DIF) between different student groups and course attributes

Test Method	Grouping						
	Focus group Participation (Yes vs. No)	Course (Required vs. elective)	Class size (< 100 vs. > 100)	Class Size (1-49 vs 200+)	Campus	Year level 1 <sup>st</sup> & 2 <sup>nd</sup> vs. 3 <sup>rd</sup> & 4 <sup>th</sup>	Student Gender**
Mantel-Haenszel Procedure	None	None	<b>UMI 3</b>	<b>UMI 1</b>	None	None	<b>UMI 6</b>
Logistic Regression Models*	None	None	<b>UMI 1</b> <b>UMI 3</b>	<b>UMI 1</b>	None	None	None
Cumulative Logit Models*	None	None	None	<b>UMI 1</b>	None	<b>UMI 1</b>	<b>UMI 6</b>

\*DIF significance based on p-values < 0.05; \*\*Student gender is based on administrative records, which are currently recorded as a binary variable, Male or Female.

# Pilot Testing the Questions

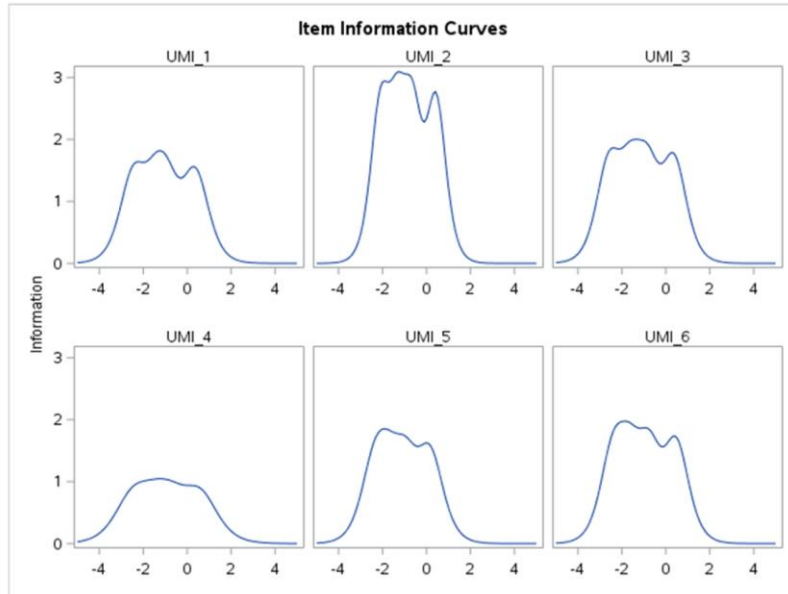


Figure 3: Item Information Curves for New UMI questions (UMI Pilot Survey)

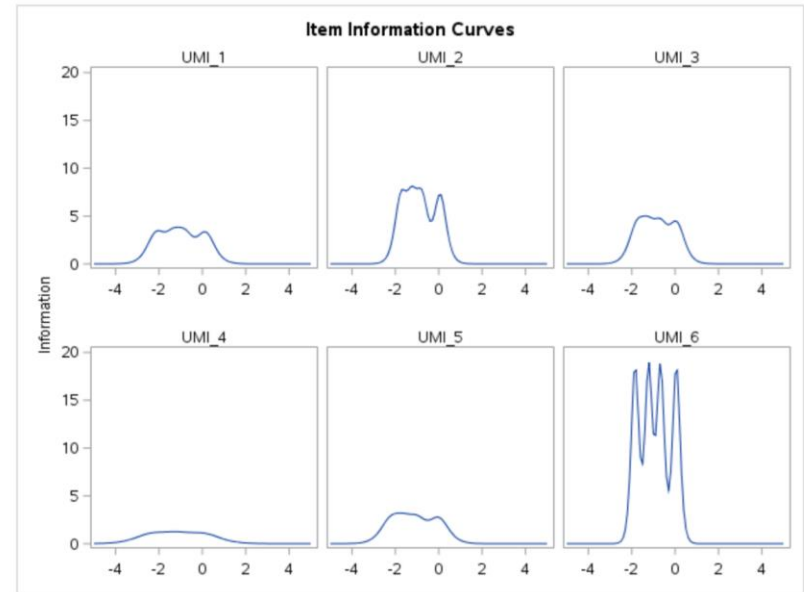


Figure 4: Item Information Curves for existing UMI questions (2020/21 W2 sample)

# Pilot Testing the Questions



Table 3: Item Discrimination Parameter Estimates

Data Source	Parameter Estimates					
	UMI 1	UMI 2	UMI 3	UMI 4	UMI 5	UMI 6
Sample from 2020/21 W2	3.62	5.38	4.15	2.02	3.28	8.67
UMI Pilot Survey	2.45	3.28	2.62	1.84	2.47	2.58

# Student Experiences of Instruction: Now





# New Universal Questions



1. Throughout the term, the instructor explained course requirements so it was clear to me what I was expected to learn.
2. The instructor conducted this course in such a way that I was motivated to learn.
3. The instructor presented the course material in a way that I could understand.
4. Considering the type of class (e.g., large lecture, seminar, studio), the instructor provided useful feedback that helped me understand how my learning progressed during this course.
5. The instructor showed genuine interest in supporting my learning throughout this course.
6. Overall, I learned a great deal from this instructor.

UMI questions use a 5-point Likert scale (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)



# New Open-Ended Questions



7. Please identify what you consider to be the strengths of this course.
8. Please provide suggestions on how this course might be improved.
9. Do you have any suggestions for what the instructor could have done differently to further support your learning?

# Student Experiences of Instruction at UBC



## Text comments

- Pilot testing a natural language processing system for gleaning meaning from open-text comments by students

## Further analyses of SEI data

- Continuing previous analyses used to test the questions
- Analyses for possible bias (including between campuses, and using a variety of predictive models exploring class size, course level, and a variety of other variables that may explain possible variance in the data)

# Integrative Evaluation of Teaching at UBC



Focus on a more holistic approach to the evaluation of teaching:

- Evidence from students
- Evidence from peers
- Evidence from self

A balanced / integrative approach to evaluating teaching is critical to faculty (and institutional) success

*Thank you*

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