

The Value of Lecture Recording at the University of Edinburgh

Interim Evaluation Report

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Appendix B - Student Survey Data Collection

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Design and Sample

It was decided to capture student opinion regarding lecture recording on a wide scale through a survey. To avoid a full-university email, data from the 2017 Course Evaluation Questionnaires was used to target specific schools. One of the themes within the CEQ free text data was 'availability of learning resources', and this was predominantly about lecture recording (*Figure i*). Eight schools were selected which had positive, mixed and negative feelings in this theme.

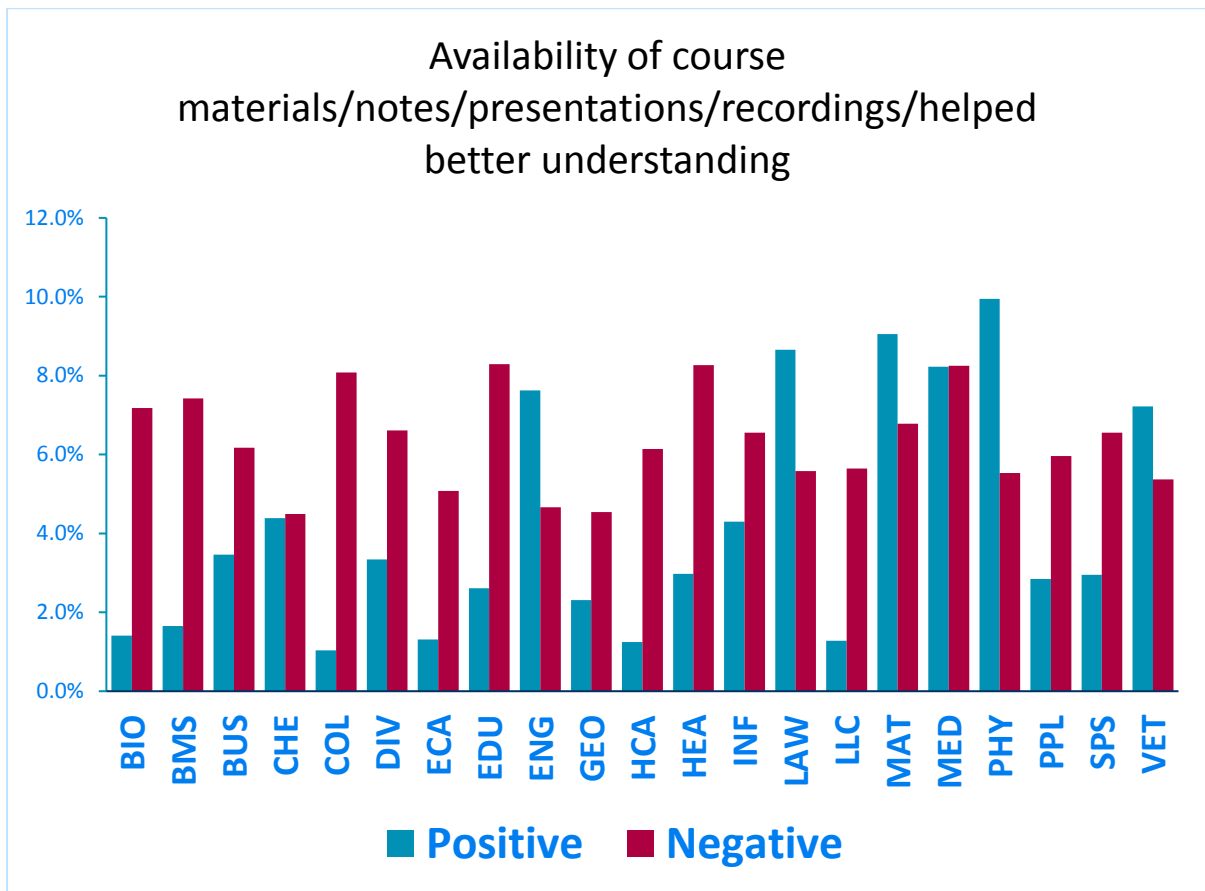
The schools sampled were:

- School of Biology (CSE, Negative response in CEQ)
- Biomedical School (CMVM, Negative response in CEQ)
- Moray House (CAHSS, Negative response in CEQ)
- Chemistry (CSE, Mixed response in CEQ)
- Medicine (CMVM, Mixed response in CEQ)
- Maths (CSE, Positive response in CEQ)
- Law (CAHSS, Positive response in CEQ)
- Engineering (CSE, Positive response in CEQ)

First year students were sampled as they would only experience the Media Hopper Replay lecture recording as offered by Edinburgh, and would be less likely to compare to Panopto, or previous ad-hoc school systems.

The survey opened on the 2nd May, 2018 and a reminder was circulated on the 14th May. The survey closed on the 1st June (duration: 29 days). It was sent to 2125 first year students across eight schools. A total of 295 students responded (13.8% response rate) and all respondents answered all questions. There was no need to exclude any respondents.

Figure i: Proportion of free-text comments in Course Evaluation Questionnaires (2017) related to availability of resources by school.



Questionnaire Text

The full questionnaire text is provided in a JSON file in the MLE 004 Sharepoint site within the Engagement and Evaluation folder for future reference.

Questionnaire - Page 1

About this survey

Hello and welcome to this short survey about how you use recorded lectures at the University of Edinburgh.

In 2017 we rolled out a new lecture recording system (Media Hopper Replay) across the university. We want to make sure this system works for you, and so we would like approximately ten minutes of your time to answer a few questions.

We will use the data we collect here to improve the services we provide, and we may report some of the data at conferences or in research papers to help other institutions learn from our experience.

This data will not be used to identify you as an individual, or in any form of your course assessment.

If you do not want to take part, you can close this browser window now. If you want to know more about how we will use your data, you can read the statement below.

Otherwise,

- Please tick to confirm that you have read and understood the above statement and consent to participate in this survey.

Why are we running this survey?

We want to know how students make use of recorded lectures so we can continue to refine the services we provide.

Who is responsible for this survey?

This survey is being managed by the Lecture Recording Evaluation and Engagement Group. You can contact us here: Lecture.Recording.Programme@ed.ac.uk

Who will have access to my responses?

All members of staff associated with the lecture recording project will have access to summarised data. Summarised statistical data will be made available both internally in the university and outwith the university in reports and conferences.

What if I decide I want to withdraw my response?

We are not collecting any identifying information so we would be unable to withdraw individual responses.

When will be data be destroyed?

The data will be destroyed five years post the end of the evaluation project (2026).

Questionnaire – Page Two

Questions

About You:

How do you identify your gender?

- As a man
- As a woman
- In another way
- Prefer not to say

How old are you?

- [Numerical response, whole integers limit]

What school are you in?

- [Pre-populated list + other field]

Do you presently have a learning adjustment schedule (e.g. do you get extra time for assessments, or a scribe, etc.?)

- Yes
- No
- Not Sure
- Prefer Not To Say

Is English your first language?

- Yes
- No
- Prefer Not to Say

Do you consider yourself to be a carer (e.g. do you regularly care for a child, or a sick, elderly or disabled person)?

- Yes
- No
- Not sure
- Prefer not to say

About Lecture Recording

Please note, throughout this survey we will be asking you about ‘recorded lectures’. We mean lectures that are given to students and recorded at the time when students are in the room, not lectures which are pre-recorded without students and given to students later.

1

In the past academic year (September 2017-May 2018), have you attended a lecture that was recorded?

- Yes
- No
- Not Sure

2

In the past academic year, have you watched a recorded lecture (e.g. a recording of a lecture that was given live in front of students, not a pre-recorded lecture) outside of the classroom?

- Yes
- No
- Not Sure

3

In the past academic year, how often have you wanted to go back and watch a lecture again outside of the classroom, but been unable to? (Either because the lecture was not recorded or because it was not made available)

- At least once a day
- At least once a week
- At least once a month
- Less than once a month
- Never

4

In the past academic year, how often have you watched a full recorded lecture outside of the classroom?

- At least once a day
- At least once a week
- At least once a month
- Less than once a month
- Never

5

In the past academic year, how often have you watched specific parts of a recorded lecture, but not the whole lecture?

- At least once a day

- At least once a week
- At least once a month
- Less than once a month
- Never

6

In the past academic year, how often have you watched all or parts of a recorded lecture with classmates outside of a classroom?

- At least once a day
- At least once a week
- At least once a month
- Less than once a month
- Never

Questionnaire – Page Four

7

How important are lectures for exam revision?

- Lectures are the best resource for exam revision, they give you the information.
- Lectures are a good resource for exam revision, alongside reading other texts and discussions/practicals.
- Lectures are an okay resource for exam revision, but other texts, discussions and practicals are more important.
- Lectures are not a good resource for exam revision. Revision should come from other texts, discussions, practicals.
- I have a different opinion [write in]

8

Compared to a non-recorded lecture, if you know that a lecture is going to be recorded, how likely are you to . . .

Much Less Likely | Less Likely | No Difference | More Likely | Much More Likely

- Attend the lecture in person
- Take notes during the lecture
- Concentrate fully on the lecture without distractions
- Ask a question during the lecture
- Answer a lecturer's question
- Worry about keeping up with the lecture
- Worry about giving a wrong answer
- Worry about your own privacy

9

Is there anything you would like to tell us about your experiences with recorded lectures, good or bad?

- [Free Text Response]

Questionnaire – Final Page

Thank you for taking the time to answer our survey! You can close this window now.

Analysis

The full analysis file is present within the MLE 004 Sharepoint site within the Engagement and Evaluation subfolder.

Statistical Approach

Within this report there are a number of statistical analyses. Kruskal-Wallis tests are used to compare ranked data between groups of respondents, and these are interpreted through the use of post hoc testing (one and two-tailed multiple comparison tests to establish which group is different from an arbitrary baseline (Biology), and Jonckheere-Terpstra to establish whether there is a pattern across multiple groups). Due to the large numbers of tests being run and the relatively small dataset, these results have been interpreted conservatively. That is to say some significant p values have been dismissed after evaluation of the size of the effect.

Some natural language processing methodologies¹ have been employed to explore differences in free-text responses across groups. This includes exploring word frequencies and Term Frequency-Inverse Document Frequencies (a measure of a term's uniqueness within a category compared to its use across categories), and use of a sentiment analysis to explore the emotional associations of words based on a general-purpose lexicon generated by Bing Liu et al².

¹ <https://www.tidytextmining.com/>

² <https://www.cs.uic.edu/~liub/FBS/sentiment-analysis.html>

Full Results

Respondents

There was good response across the schools, from 12 students in the School of Mathematics to 51 students each in Biomedical and Chemistry. 69% of respondents identified as a woman, the majority (87%) did not state they had any learning adjustments, 73% were native English speakers, and 93% had no caring responsibilities (Table 1).

Table 1: Demographic breakdown of respondents (n=295)

		n	Perc
School	Biology	48	16%
	Biomedical	51	17%
	Chemistry	30	10%
	Education	37	13%
	Engineering	51	17%
	Law	35	12%
	Maths	12	4%
	Medicine	31	11%
Gender	As a Man	83	28%
	As a Woman	204	69%
	In Another Way	1	0%
	Prefer Not To Say	6	2%
	Missing Data	1	0%
Learning Adjustments (Self-Disclosure)			
	Learning Adjustments	26	9%
	No Learning Adjustments	257	87%
	Not Sure	11	4%
	Prefer Not to Say	1	0%
Native Language			
	Native English Speaker	215	73%
	Non Native English Speaker	79	27%
	Prefer Not To Say	1	0%
Carer Status (Self-Disclosure)			
	Carer	15	5%
	Not A Carer	273	93%
	Not Sure	7	2%

How Do Students Use Recorded Lectures

Students considered that their most common use of recorded lectures was to watch the full lecture by themselves with 60% of respondents responding that they watched full lectures at least once a week or more frequently (Table 2). 49% watched the specific parts of a recorded lecture that often, and only 3% watched a recorded lecture with their classmates that frequently.

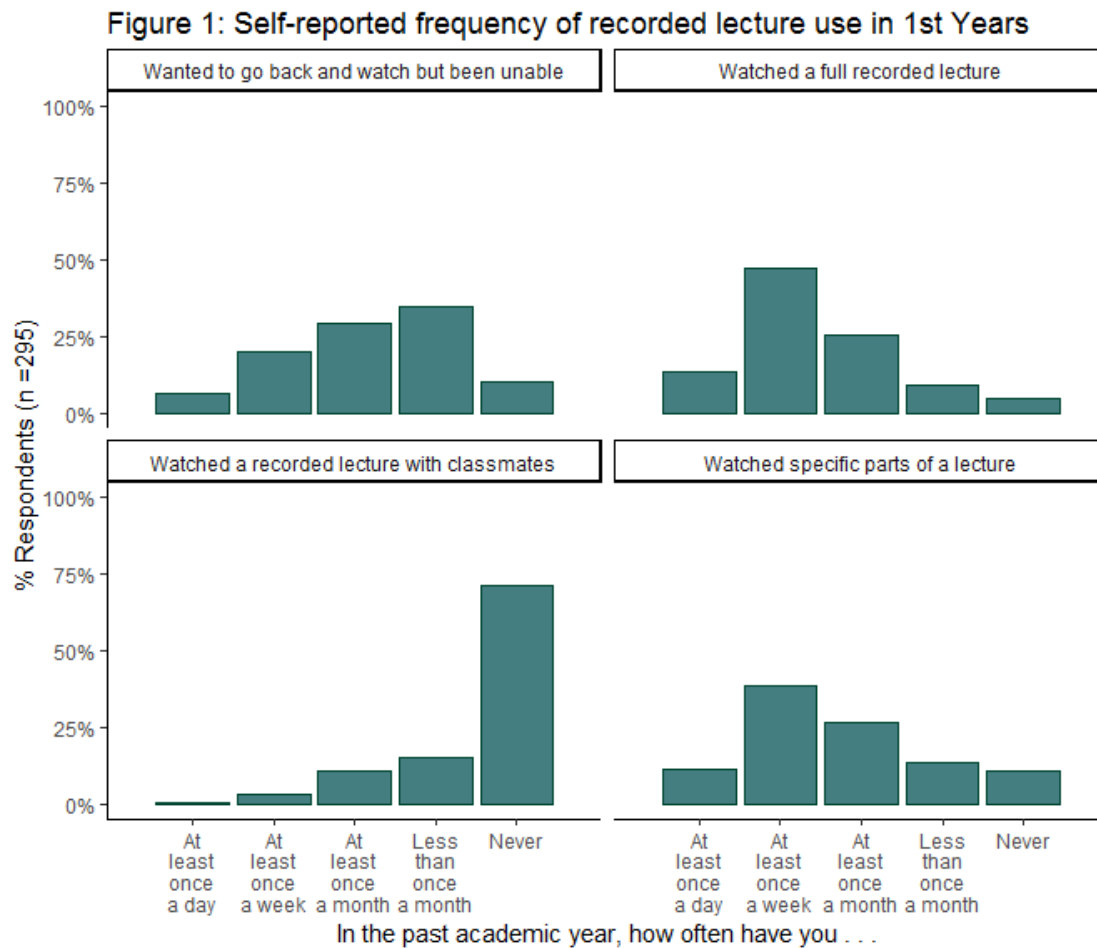
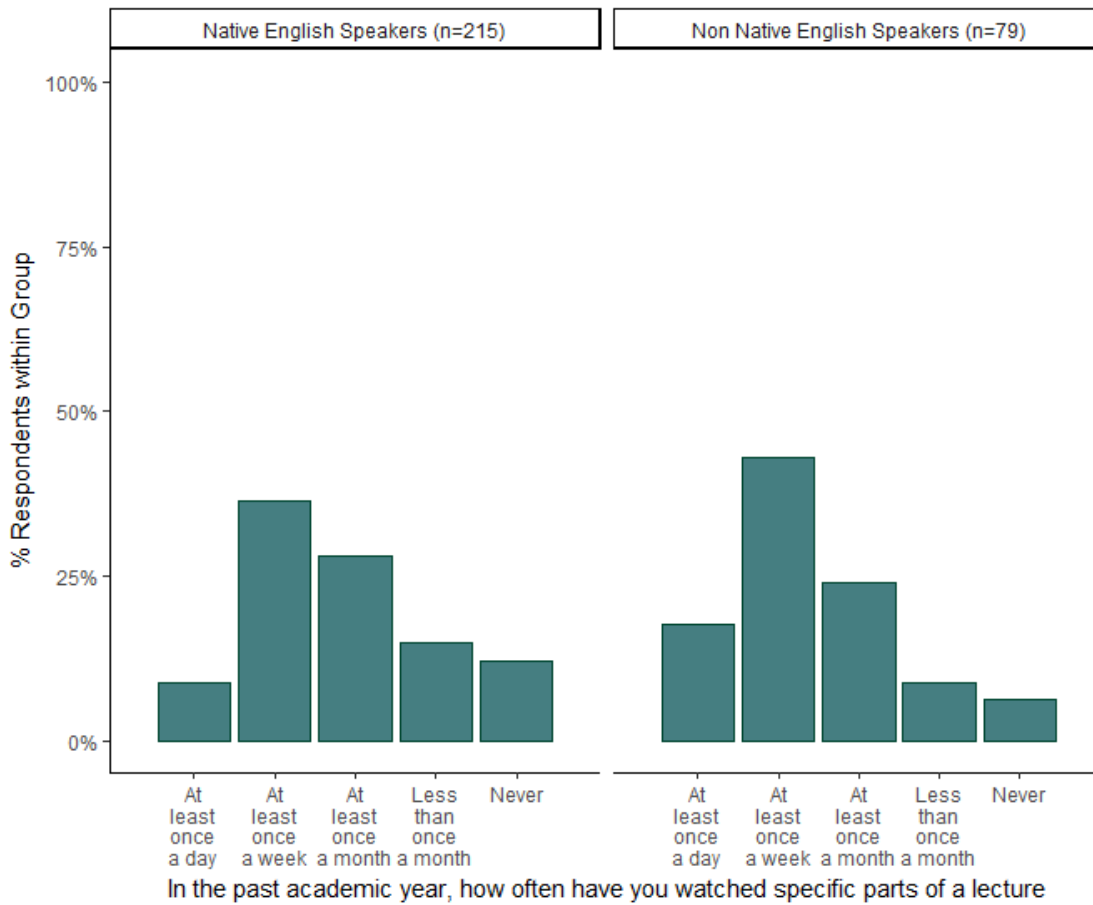


Table 2: N (%) Respondents who watch a full recorded lecture

LectureHabits	Frequency	n	Perc
Wanted to go back and watch but been unable to	1. At least once a day	18	6%
	2. At least once a week	59	20%
	3. At least once a month	86	29%
	4. Less than once a month	102	35%
	5. Never	30	10%
Watched a full recorded lecture	1. At least once a day	39	13%
	2. At least once a week	139	47%
	3. At least once a month	74	25%
	4. Less than once a month	27	9%
	5. Never	14	5%
Watched a recorded lecture with classmates	1. At least once a day	1	0%
	2. At least once a week	9	3%
	3. At least once a month	31	11%
	4. Less than once a month	44	15%
	5. Never	210	71%
Watched specific parts of a lecture	1. At least once a day	33	11%
	2. At least once a week	113	38%
	3. At least once a month	79	27%
	4. Less than once a month	39	13%
	5. Never	31	11%

There was no difference in students' reported frequency of watching lectures, or being able to obtain lectures by their carer status, whether they were a native English speaker, whether they had learning adjustments, or gender. However, non-native English speakers were slightly more likely to watch specific parts of a lecture more frequently ($H^2 = 8.52$, $P = 0.014$, Figure 2).

Figure 2: Self-reported use of recorded lectures by native language

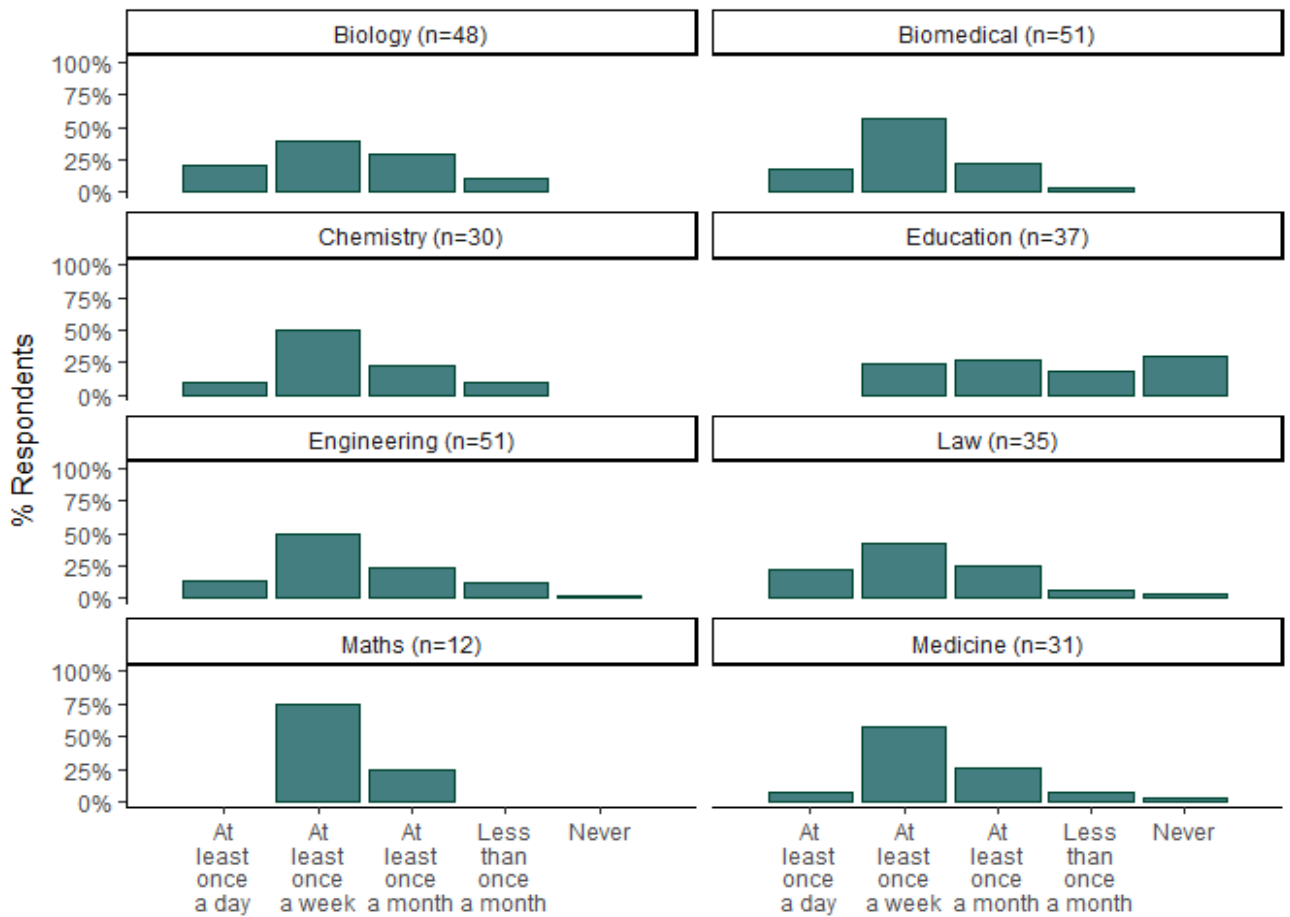


However, there were significant differences across schools in how students used the materials (Table 3, Figure 3), those students in the school of Education reported watching recorded lectures significantly less frequently ($H^{(7)} = 39.204, p < 0.001$). Similarly, students from the school of Education less commonly watched specific parts of a lecture ($H^{(7)} = 28.349, P < 0.001$), however this should be interpreted with caution.

Table 3: Self report of watching habits of N (%) respondents by School

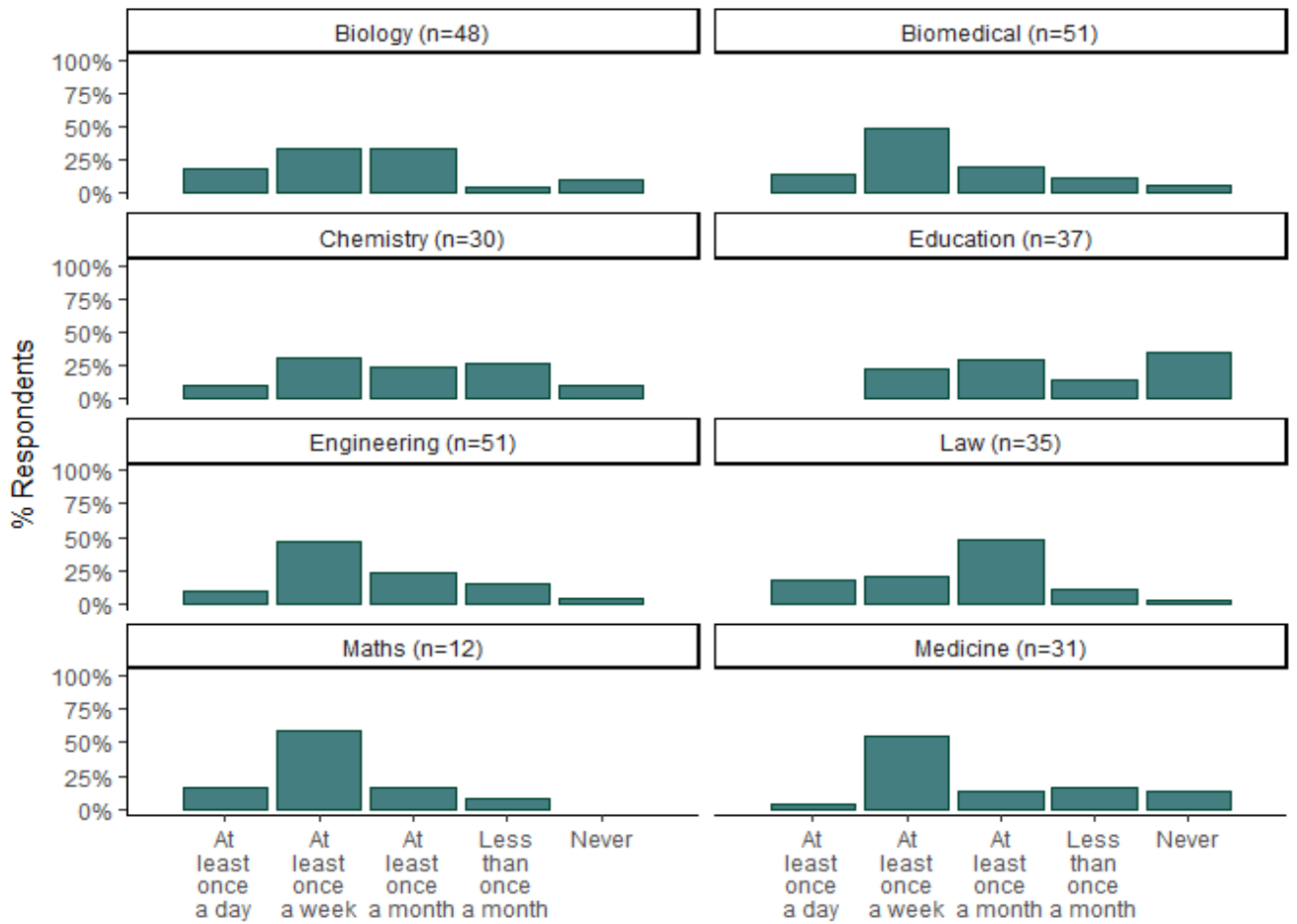
School	FreqWatched	n	Perc
Biology	At Least Once a Day	10	21%
	At Least Once a Month	14	29%
	At Least Once a Week	19	40%
	Less Than Once a Month	5	10%
Biomedical	At Least Once a Day	9	18%
	At Least Once a Month	11	22%
	At Least Once a Week	29	57%
	Less Than Once a Month	2	4%
Chemistry	At Least Once a Day	3	10%
	At Least Once a Month	7	23%
	At Least Once a Week	15	50%
	Less Than Once a Month	3	10%
Education	At Least Once a Month	10	27%
	At Least Once a Week	9	24%
	Less Than Once a Month	7	19%
	Never	11	30%
Engineering	At Least Once a Day	7	14%
	At Least Once a Month	12	24%
	At Least Once a Week	25	49%
	Less Than Once a Month	6	12%
	Never	1	2%
Law	At Least Once a Day	8	23%
	At Least Once a Month	9	26%
	At Least Once a Week	15	43%
	Less Than Once a Month	2	6%
	Never	1	3%
Maths	At Least Once a Month	3	25%
	At Least Once a Week	9	75%
Medicine	At Least Once a Day	2	6%
	At Least Once a Month	8	26%
	At Least Once a Week	18	58%
	Less Than Once a Month	2	6%
	Never	1	3%

Figure 3.1: Differences per School in lecture watching habits (full recorded lectures)



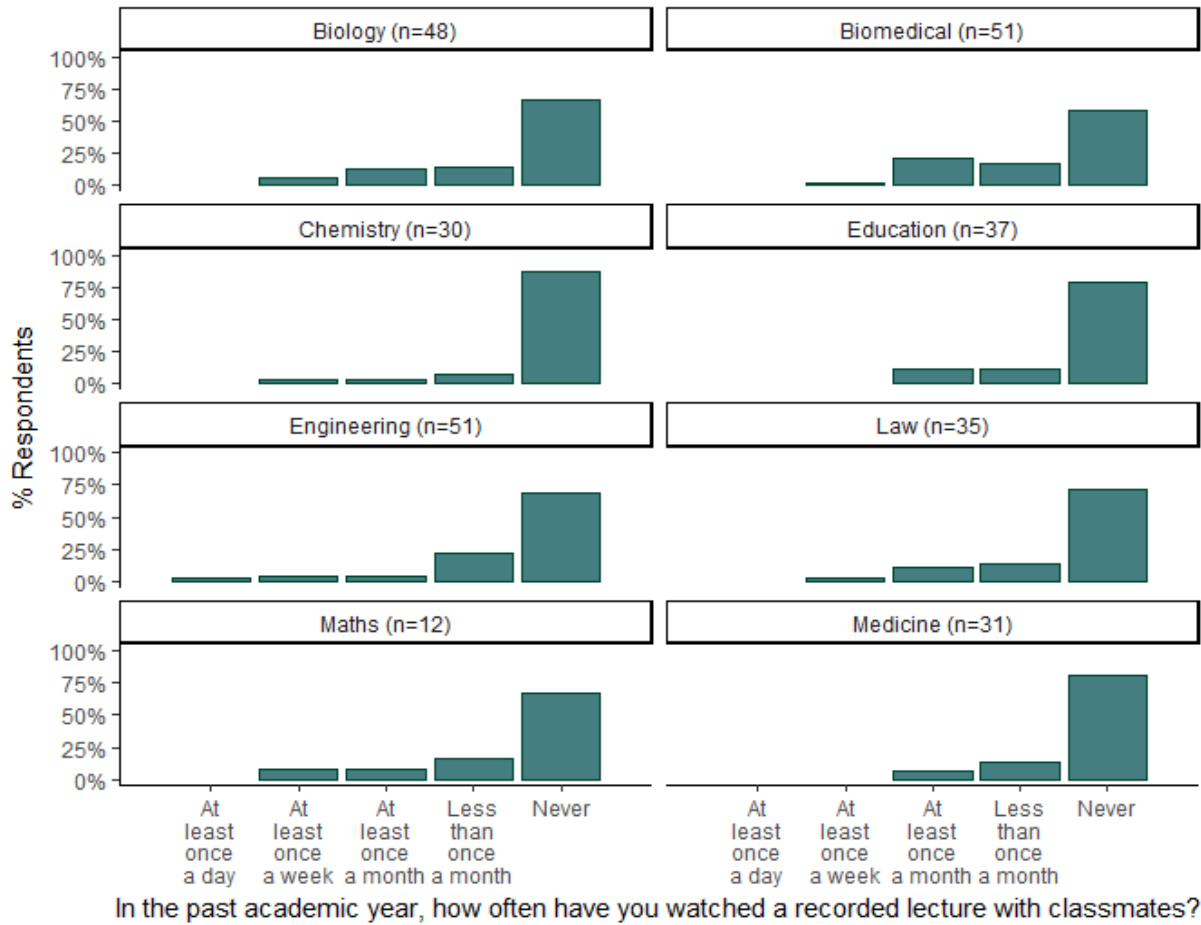
In the past academic year, how often have you watched a full recorded lecture outside of the classroom?

Figure 3.2: Differences per School in lecture watching habits (specific parts of recorded lectures)



In the past academic year, how often have you watched a specific parts of a lecture?

Figure 3.3: Differences per School in lecture watching habits (watch with classmates)

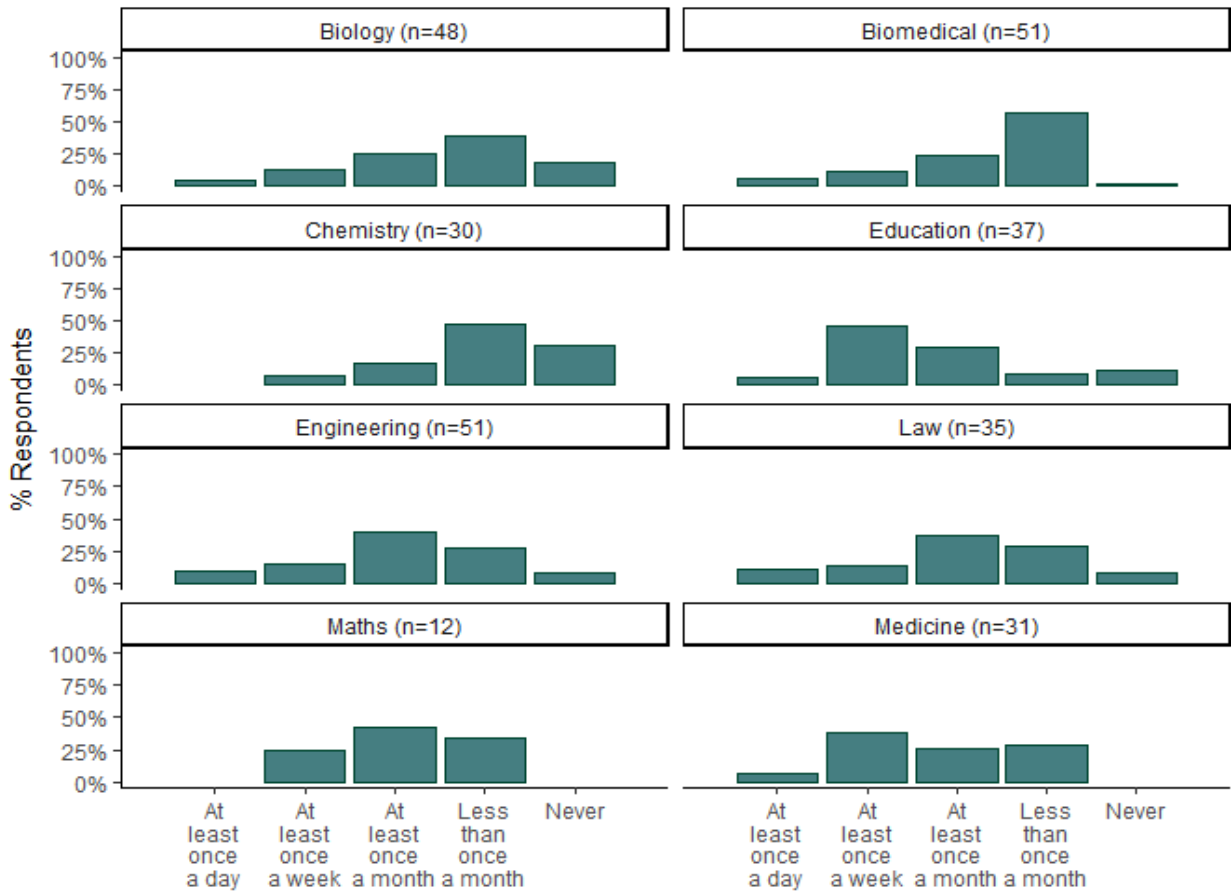


How often are students unable to watch a lecture because it hasn't been recorded?

Students generally were able to find recorded materials when they wanted them, with 45% of students reporting that they experienced trouble finding recorded materials less than once a month. However, 26% of students reported being unable to watch a recorded lecture weekly or more frequently (Table 2). Post-hoc one-tailed testing in a Kruskal Wallis revealed that students from the school of Education and Medicine were the least commonly unable to find a recorded lecture ($H^{(7)} = 39.429$, $p < 0.001$, Figure 4.1).

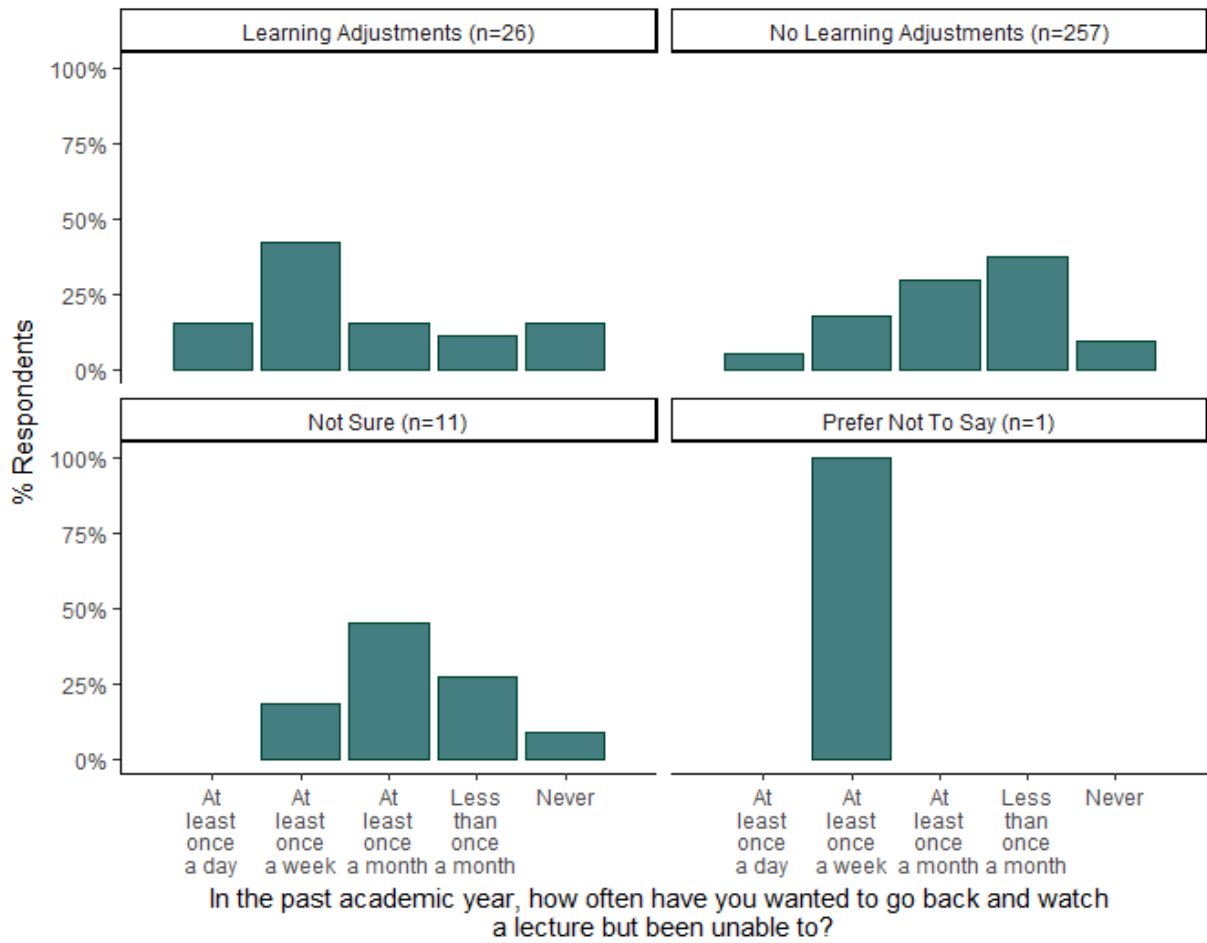
However, students with learning adjustments were more likely to report being unable to watch a lecture back again at least once a week ($H^{(3)}=8.356$, $p = 0.039$, Figure 5), and this was significantly different from students with no learning adjustments in two-tailed post hoc testing. While this is a small effect observed within a small section of the surveyed students, it is worth highlighting.

Figure 4: Self-reports of frequency of being unable to find material by school



In the past academic year, how often have you wanted to go back and watch a lecture but been unab

Figure 5: Self-reports of being unable to find material by learning adjustment

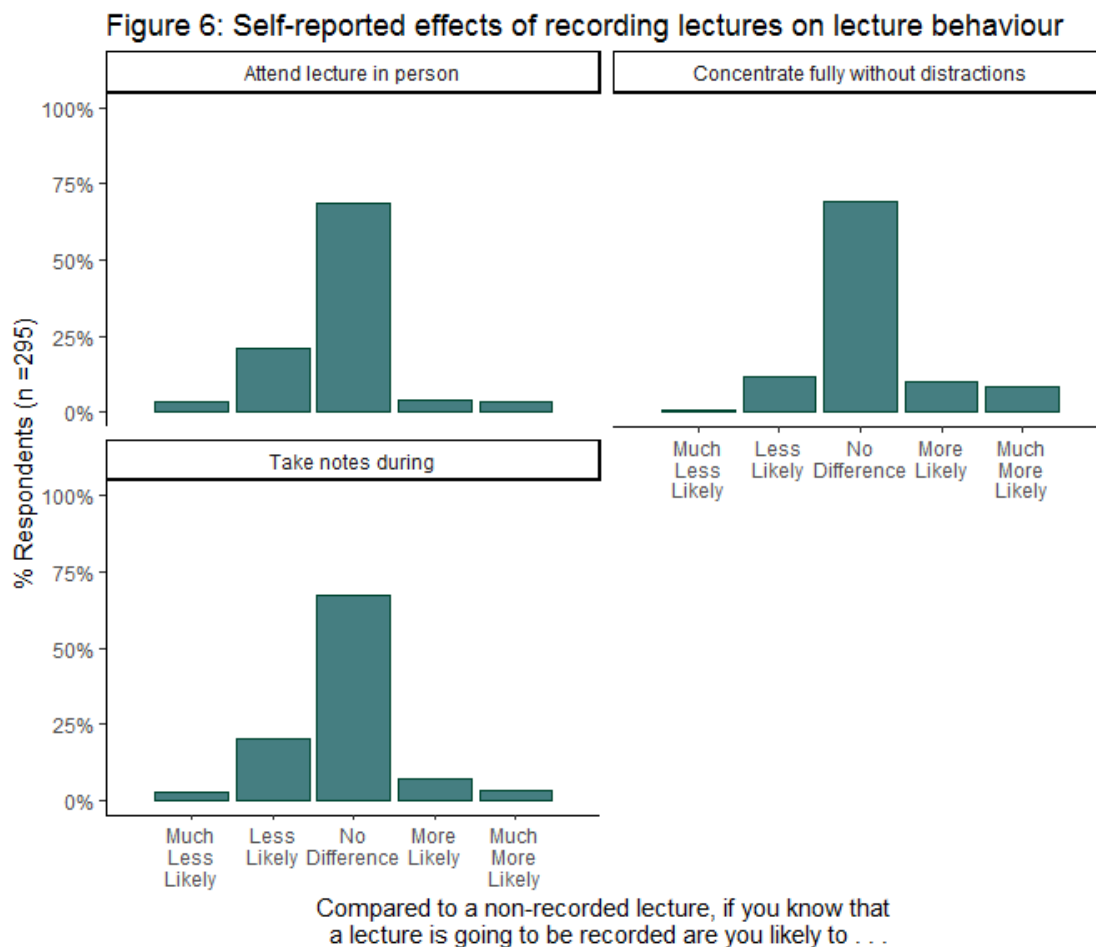


How Do Students Behave In Recorded Lectures?

24% of students felt they might be less likely to attend a lecture if they felt it was recorded (Table 4, Figure 6), and this was not affected by the School, whether or not the student had a learning adjustment, whether they were a native English speaker, carer status, or gender.

Table 4: Self-reported likelihood of N (%) Respondents attending a recorded lecture in person compared to a non-recorded lecture

AttendInPerson	n	Perc
1. Much Less Likely	10	3%
2. Less Likely	61	21%
3. No Difference	202	68%
4. More Likely	11	4%
5. Much More Likely	10	3%
NA	1	0%



69% of students thought there would be no difference in their concentration levels when lectures were recorded (Table 5) and there was no difference across student status and school. Similarly, 67% of students felt there would be no difference in their likelihood to take notes during a recorded lecture (Table 6), however there was a significant trend for the school of Mathematics to be less likely to take notes ($H(7) = 20.681, p = 0.004$, Figure 8).

Figure 7: Self reported effects of recording lectures on note-taking and concentration

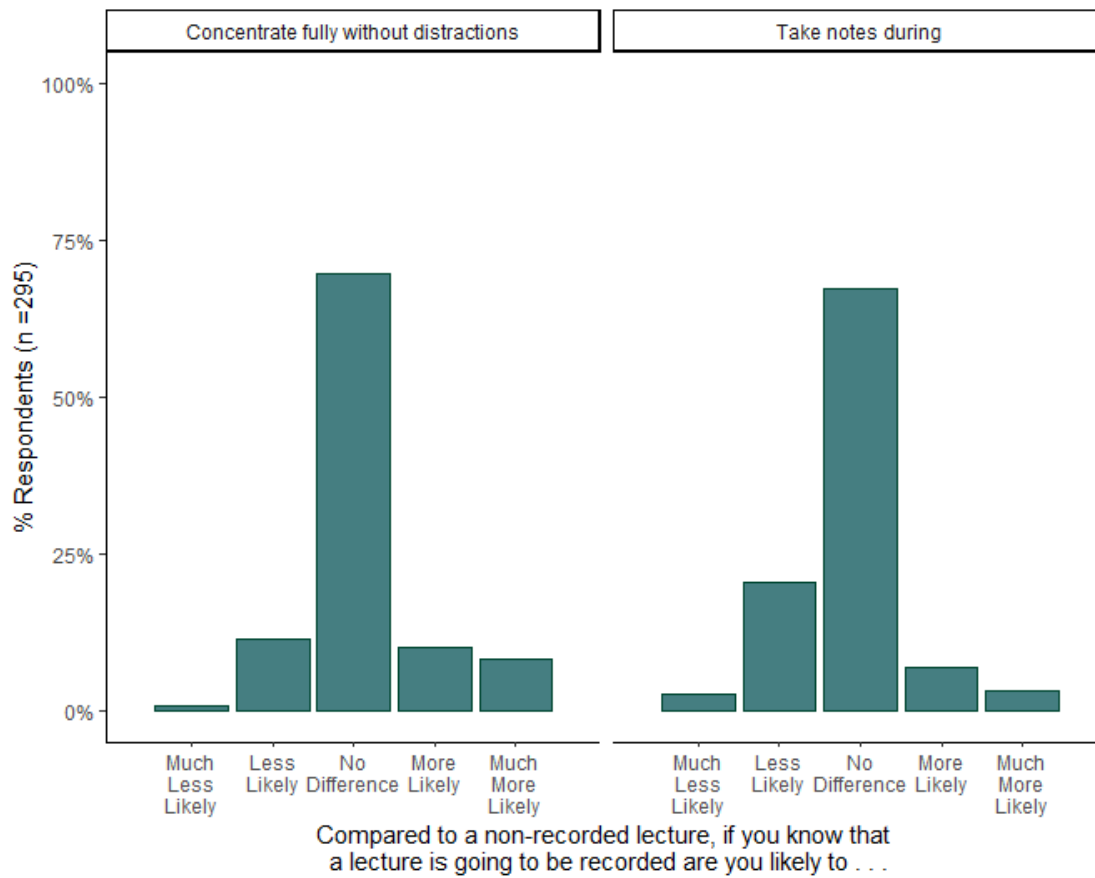


Table 5: Self-reports of effects of recording lectures on student concentration. N (%) Respondents

Concentrate	n	Perc
1. Much Less Likely	2	1%
2. Less Likely	34	12%
3. No Difference	205	69%
4. More Likely	30	10%
5. Much More Likely	24	8%

Figure 8: Self reported effects of recording lectures on note-taking by school

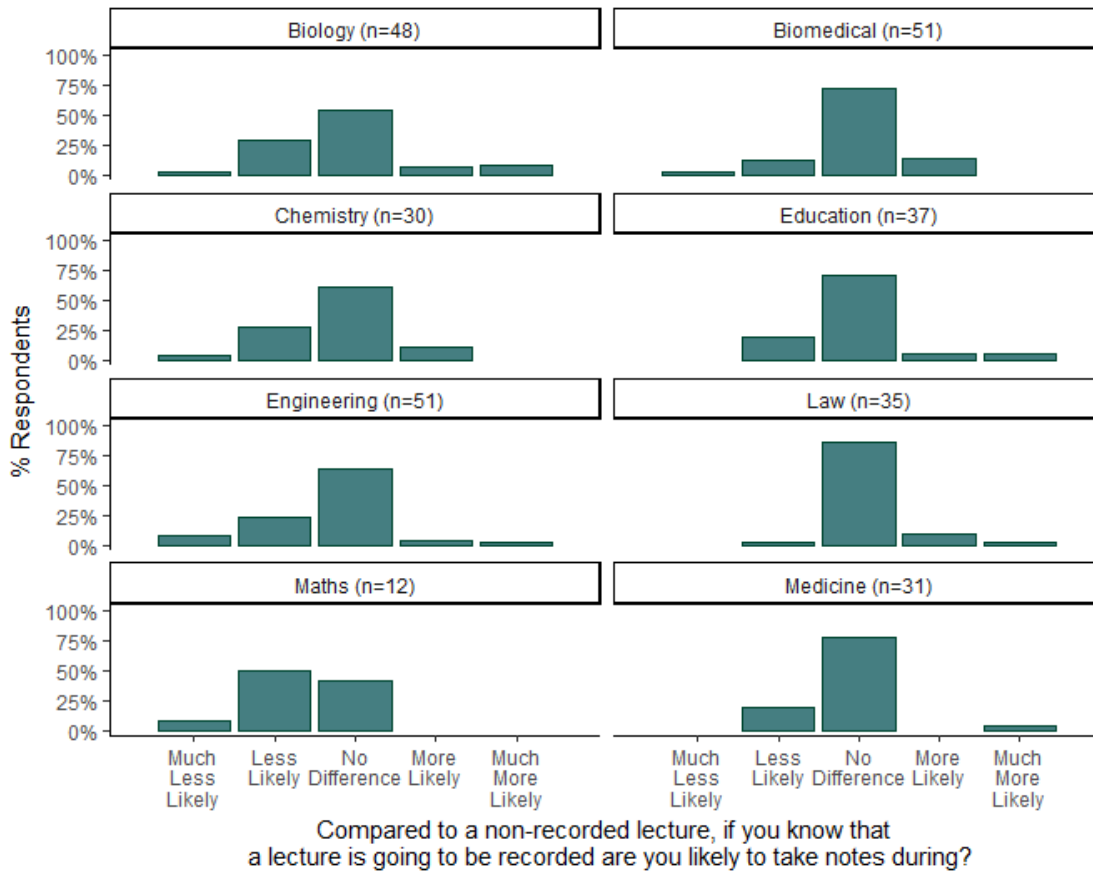
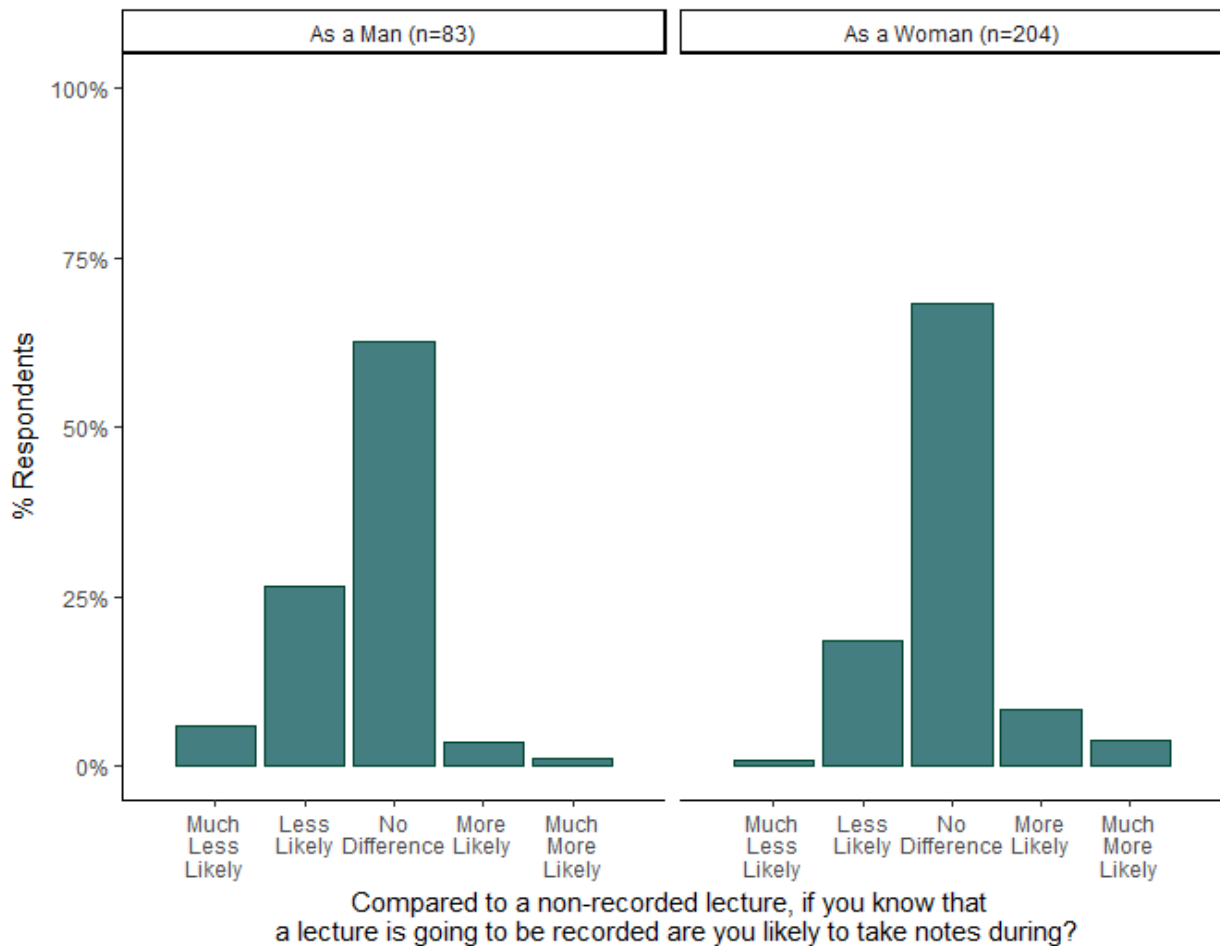


Table 6: Self-reports of effects of recording lectures on student note-taking N (%) Respondents

TakeNotesDuring	n	Perc
1. Much Less Likely	8	3%
2. Less Likely	60	20%
3. No Difference	198	67%
4. More Likely	20	7%
5. Much More Likely	9	3%

There was also a significant trend for students who identified as male to consider themselves less likely to take notes during recorded lectures. As this data was messy, a comparison was made strictly between students who identified as male (n = 83) and students who identified as female (n = 204) and this difference was no longer significant (Figure 9).

Figure 9: Self reported effects of recording lectures on note-taking by gender



Does Recording Affect Students' Perceptions of Question Asking Behaviour

81% of students reported that there would be no difference in their likelihood to *answer* questions in a recorded lecture (Table 7.1), with 10% even reporting they would be more likely to answer questions in a recorded lecture. Slightly fewer (77%) students reported there would be no difference in their likelihood to *ask* questions in a recorded lecture (Table 8). There was some evidence that female students would be less likely to answer questions in recorded lectures (Table 7.1), but this was again insignificant when compared strictly against male students. Although this difference did not remain significant it's worth noting that, in total, 24 students (8.1% of total) reported they would be less likely to answer questions in a recorded lecture, and of these 24, 79% identified as a woman. There was a suggestion that students with learning adjustments may also be less likely to *ask* a question in a recorded lecture, however this difference was small ($H^3 = 10.47, p = 0.015$, Figure 11) and did not remain significant during post-hoc testing. Finally students within the School of

Education were slightly more likely to report being less likely to *answer* a question in a recorded lecture ($H(7) = 25.682, p < 0.001$, Figure 12).

Figure 10: Self reports of students likelihood to answer and ask questions during recorded lectures compared to non-recorded lectures

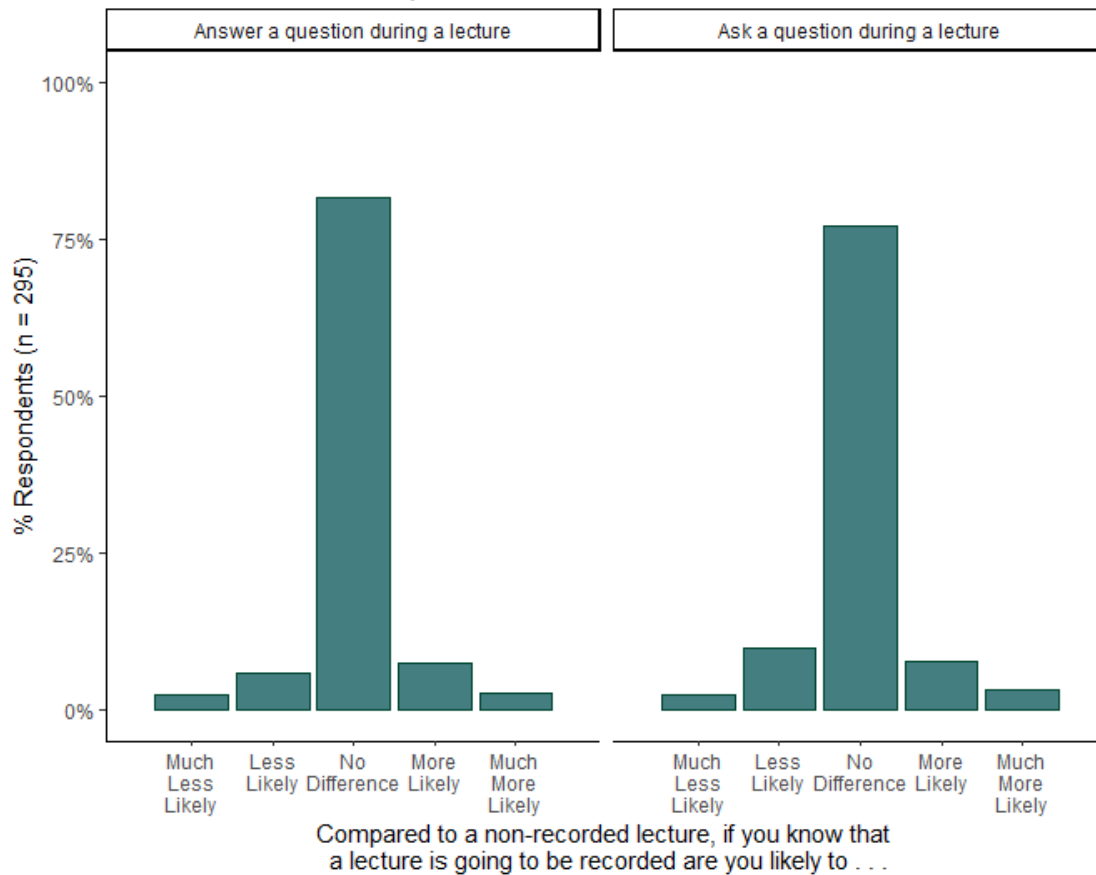


Table 7.1: Self reports of the effect of recorded lectures on likelihood to answer questions. N (%) Respondents

AnswerQuestions	n	Perc
1. Much Less Likely	7	2%
2. Less Likely	17	6%
3. No Difference	240	81%
4. More Likely	22	7%
5. Much More Likely	8	3%
NA	1	0%

Table 7.2: Self reports of the effect of recorded lectures on likelihood to answer questions by gender. N (%) Respondents

AnswerQuestions	Gender	n	Perc
1. Much Less Likely	As a Man	1	14%
1. Much Less Likely	As a Woman	5	71%
1. Much Less Likely	Prefer Not To Say	1	14%
2. Less Likely	As a Man	2	12%

2. Less Likely	As a Woman	14	82%
2. Less Likely	Prefer Not To Say	1	6%
3. No Difference	As a Man	72	30%
3. No Difference	As a Woman	164	68%
3. No Difference	Prefer Not To Say	4	2%
4. More Likely	As a Man	5	23%
4. More Likely	As a Woman	15	68%
4. More Likely	In Another Way	1	5%
4. More Likely	NA	1	5%
5. Much More Likely	As a Man	2	25%
5. Much More Likely	As a Woman	6	75%
NA	As a Man	1	100%

Table 8: Self reports of the effect of recorded lectures on likelihood to ask questions. N (%) Respondents

AskQuestions	n	Perc
1. Much Less Likely	7	2%
2. Less Likely	29	10%
3. No Difference	227	77%
4. More Likely	23	8%
5. Much More Likely	9	3%

Figure 11: Self reports of students likelihood to ask questions during recorded lectures compared to non-recorded lectures by learning adjustmen

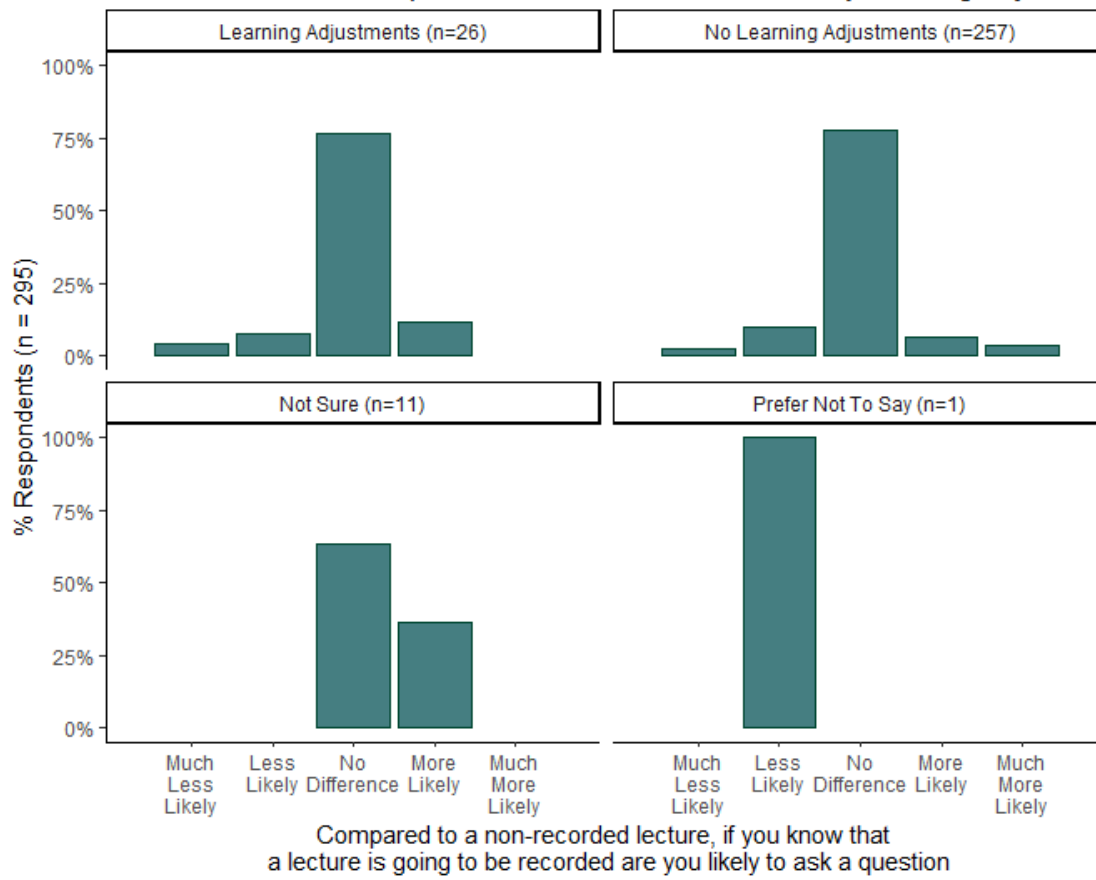
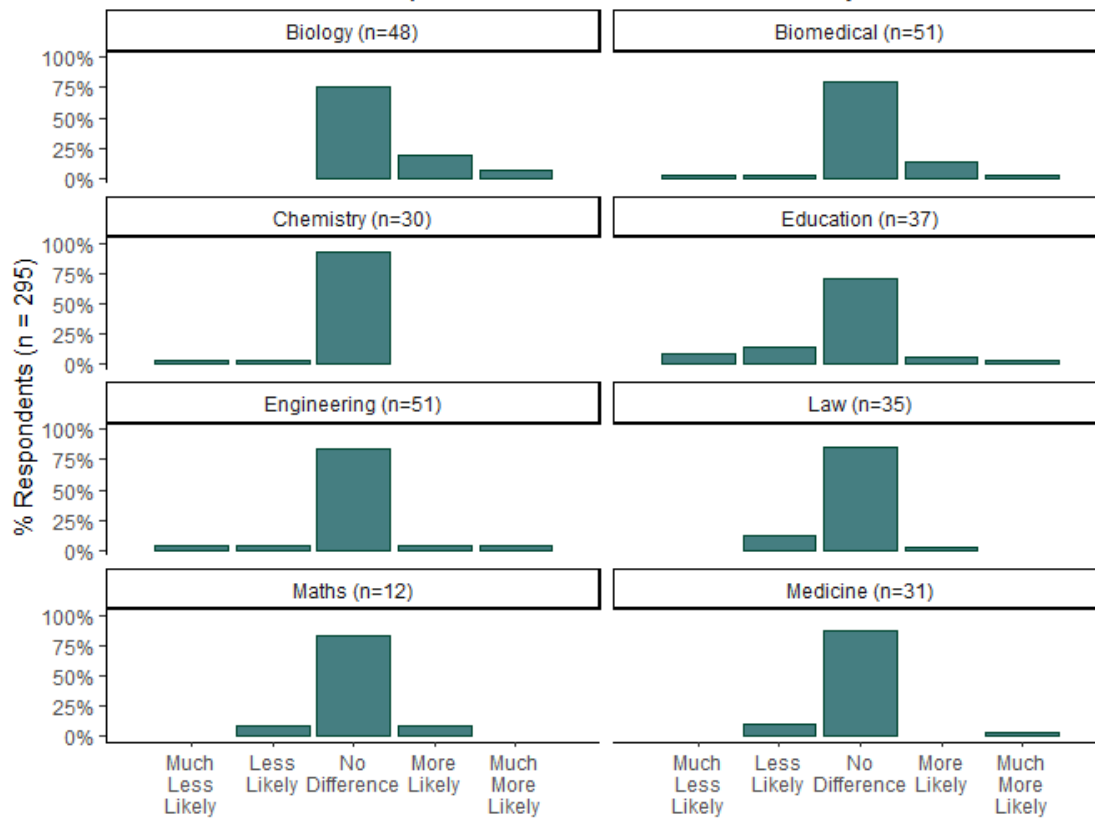


Figure 12: Self reports of students likelihood to answer questions during recorded lectures compared to non-recorded lectures by school



Compared to a non-recorded lecture, if you know that a lecture is going to be recorded are you likely to answer a question.

Figure 13: Self reports of students likelihood to answer questions during recorded lectures compared to non-recorded lectures by native language

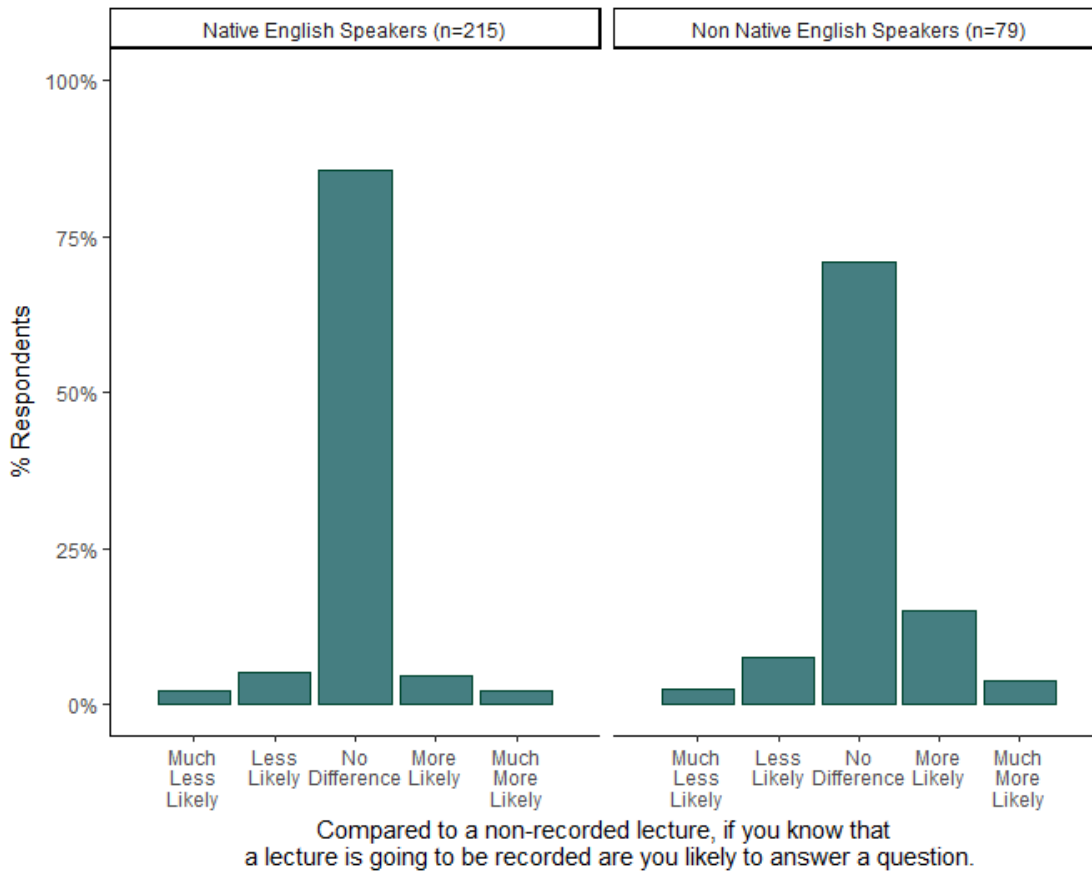
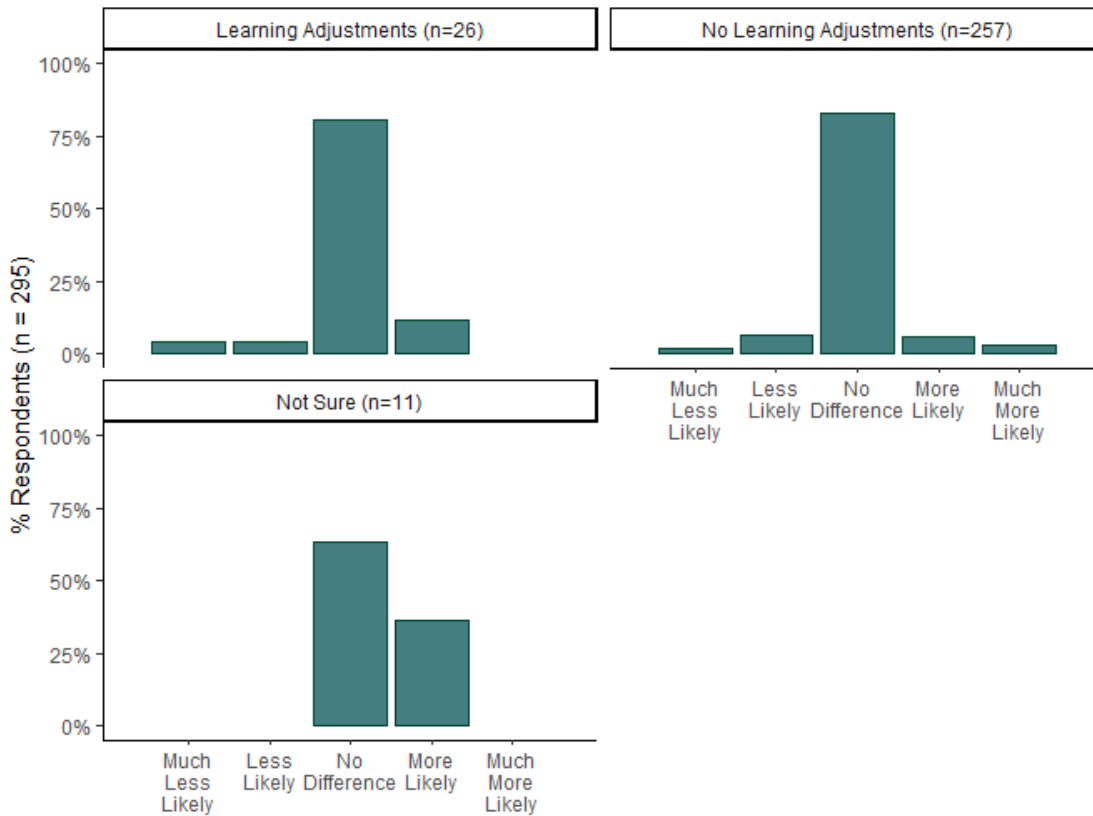


Figure 14: Self reports of students likelihood to answer questions during recorded lectures compared to non-recorded lectures by Learning Adjustmei



Compared to a non-recorded lecture, if you know that a lecture is going to be recorded are you likely to answer a question.

How Do Recorded Lectures Affect Student Worry?

74% of students responded that they would be less likely to worry about keeping up with a lecture when it was recorded, while 87% of students felt there would be no difference in their concerns regarding their own privacy, and 73% felt there would be no difference regarding their worries about giving the wrong answer in class (Table 8).

Worries about keeping up, giving the wrong answer, and privacy concerns were not affected by School or student status, however non-native English speakers were significantly more likely than native English speakers to worry about keeping up with lectures, even when the lectures were recorded ($H^2 = 10.492$, $p = 0.005$, Figure 16) which remained true in a post-hoc two-tailed test.

Figure 15: Self-reported effects of lecture recording on student worries

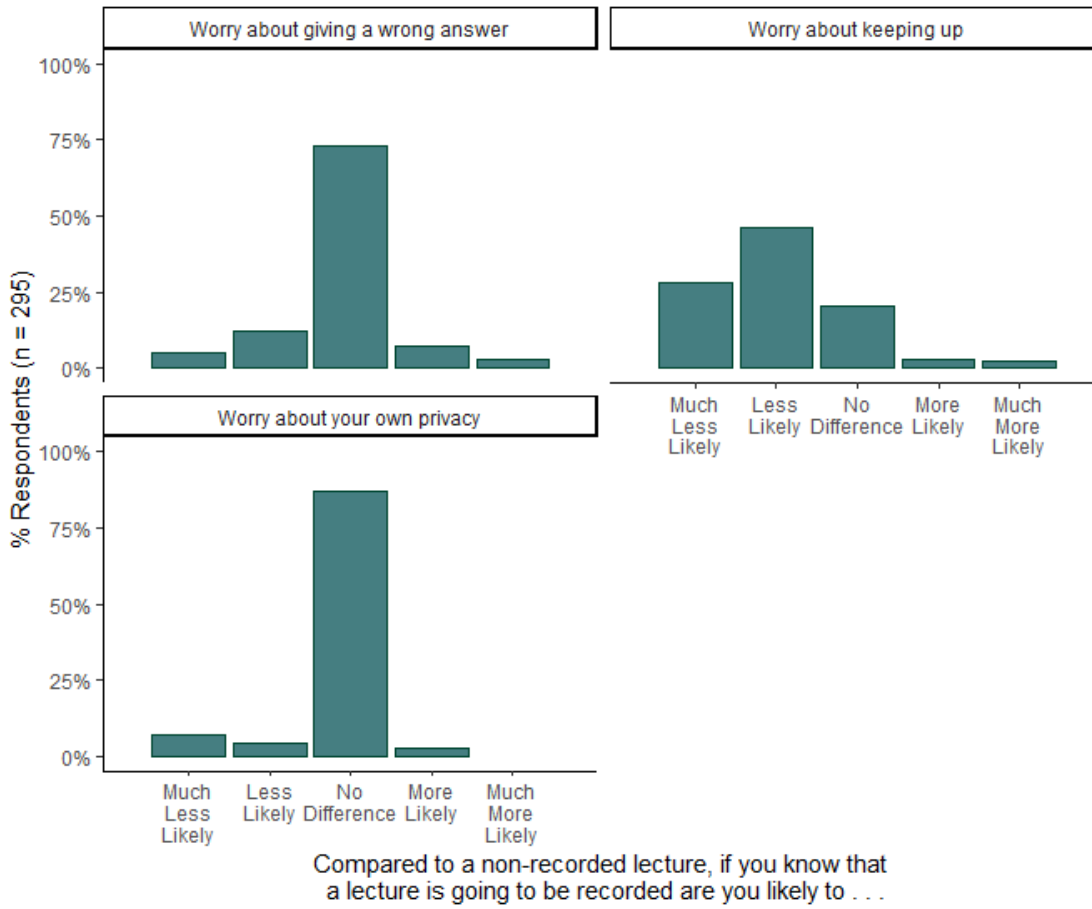


Table 8.1: Self reports of the effect of recorded lectures on likelihood to worry about keeping up. N (%) Respondents

WorryKeepUp	n	Perc
1. Much Less Likely	82	28%
2. Less Likely	136	46%
3. No Difference	60	20%
4. More Likely	9	3%
5. Much More Likely	7	2%
NA	1	0%

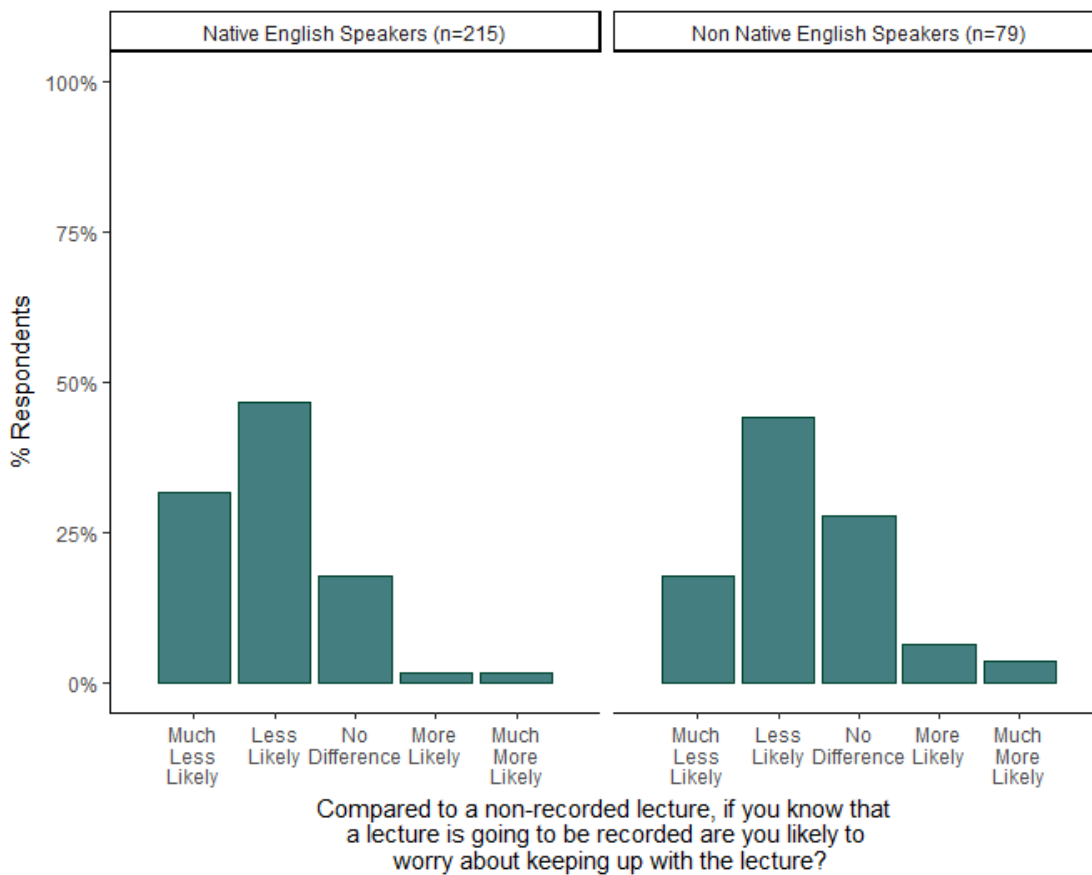
Table 8.2: Self reports of the effect of recorded lectures on likelihood to worry about their own privacy. N (%) Respondents

WorryPrivacy	n	Perc
1. Much Less Likely	20	7%
2. Less Likely	12	4%
3. No Difference	256	87%
4. More Likely	7	2%

Table 8.3: Self reports of the effect of recorded lectures on likelihood to worry about giving a wrong answer. N (%) Respondents

WorryWrong	n	Perc
1. Much Less Likely	15	5%
2. Less Likely	36	12%
3. No Difference	215	73%
4. More Likely	21	7%
5. Much More Likely	8	3%

Figure 16: Self-reported effects of lecture recording on student worries by native language



How do students study with recorded lectures

The majority of students (62%) consider lectures a good resource for exam revision (Figure 17, Table 9), alongside reading other text and practicals. Perhaps of concern, 28% of respondents considered lectures were the best resource for exam revision as they 'gave all the information'.

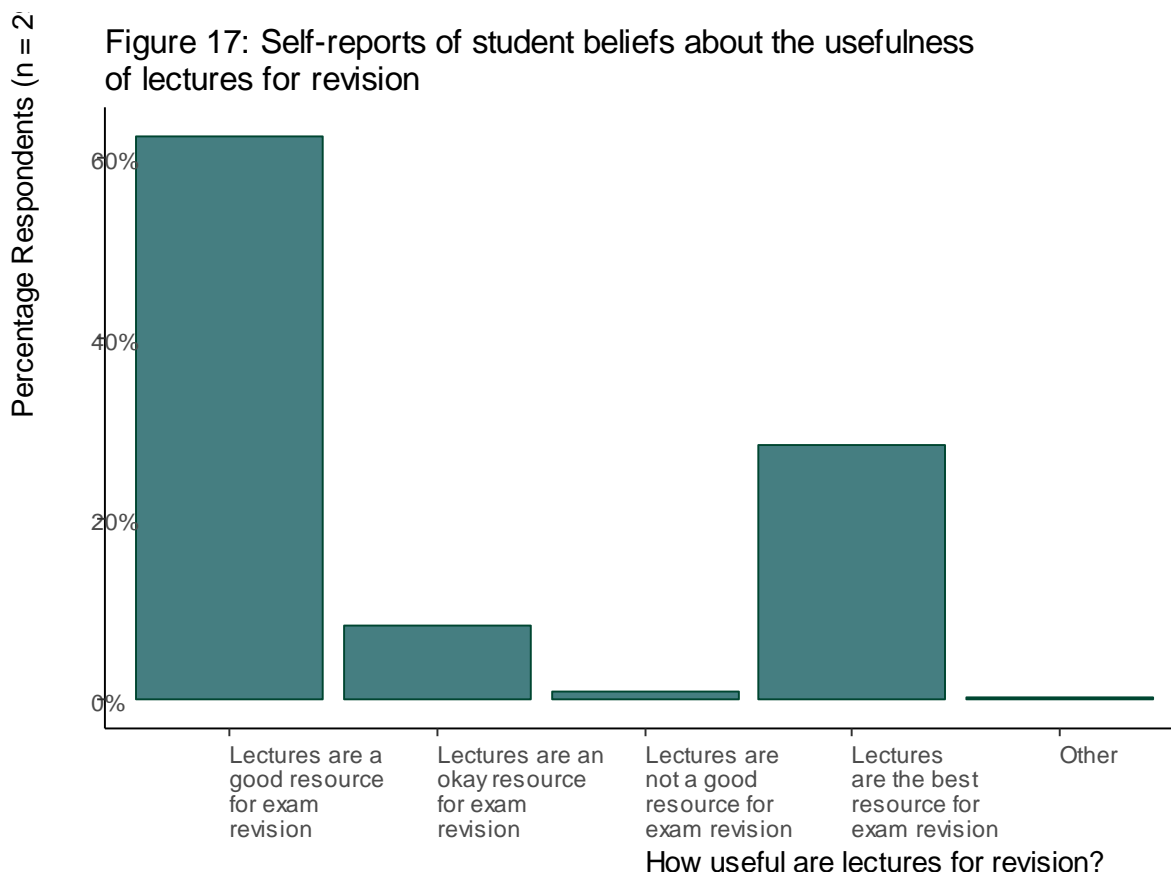


Table 9: Self-reports of student beliefs about lecture usefulness for revision

LectureImportance	n	Perc
Lectures are a good resource for exam revision	184	62%
Lectures are an okay resource for exam revision	24	8%
Lectures are not a good resource for exam revision	3	1%
Lectures are the best resource for exam revision	83	28%
Other	1	0%

Free Text Exploration

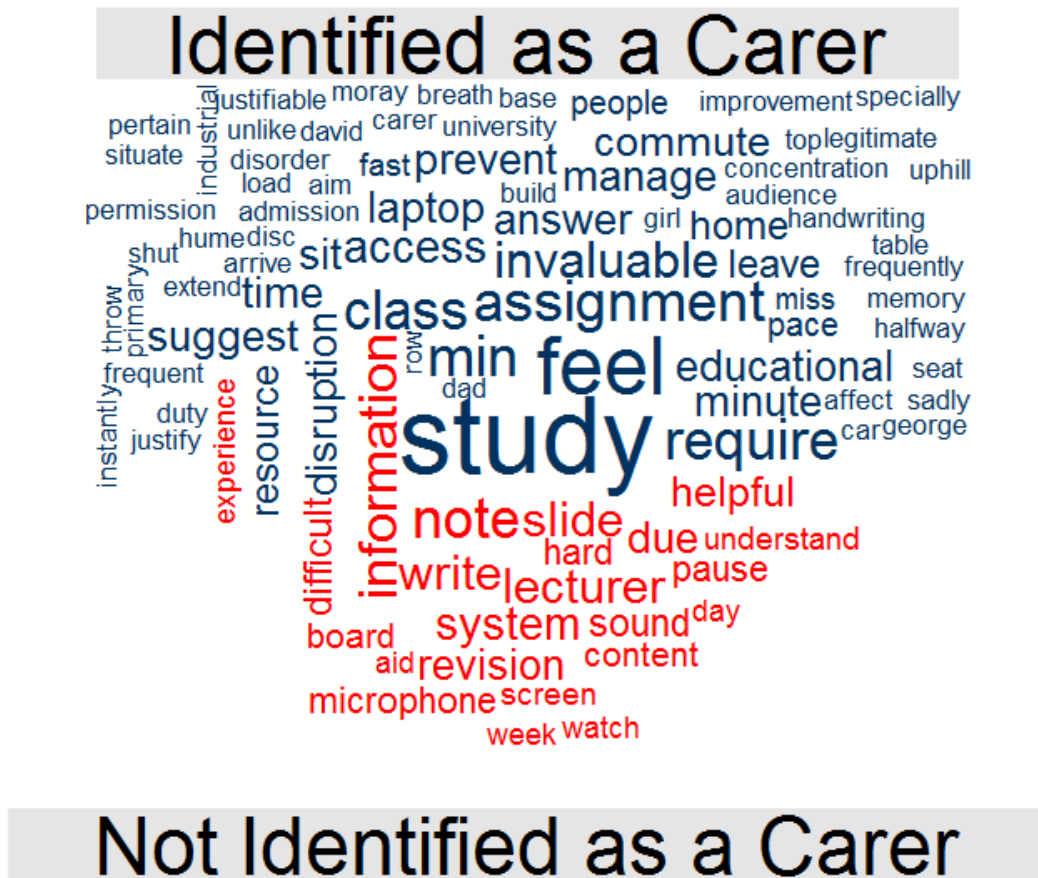
Frequency by School

A measure of word 'importance' is its *term frequency*, how frequently it occurs in a document. This is a fairly blunt measure of importance, but can be used to create visualisations of qualitative data called 'wordles', where more common words appear larger. Across the 159 students who elected to leave a comment regarding lecture recording, Figure 18 suggests students are predominantly discussing the lecturer, the lecture as a revision aid, being able to understand information, and the helpfulness of the tool. Figure 19 demonstrates the difference between word frequencies for carers and non-carers.

Figure 18: Frequency of words uses in 159 student comments about lecture recording

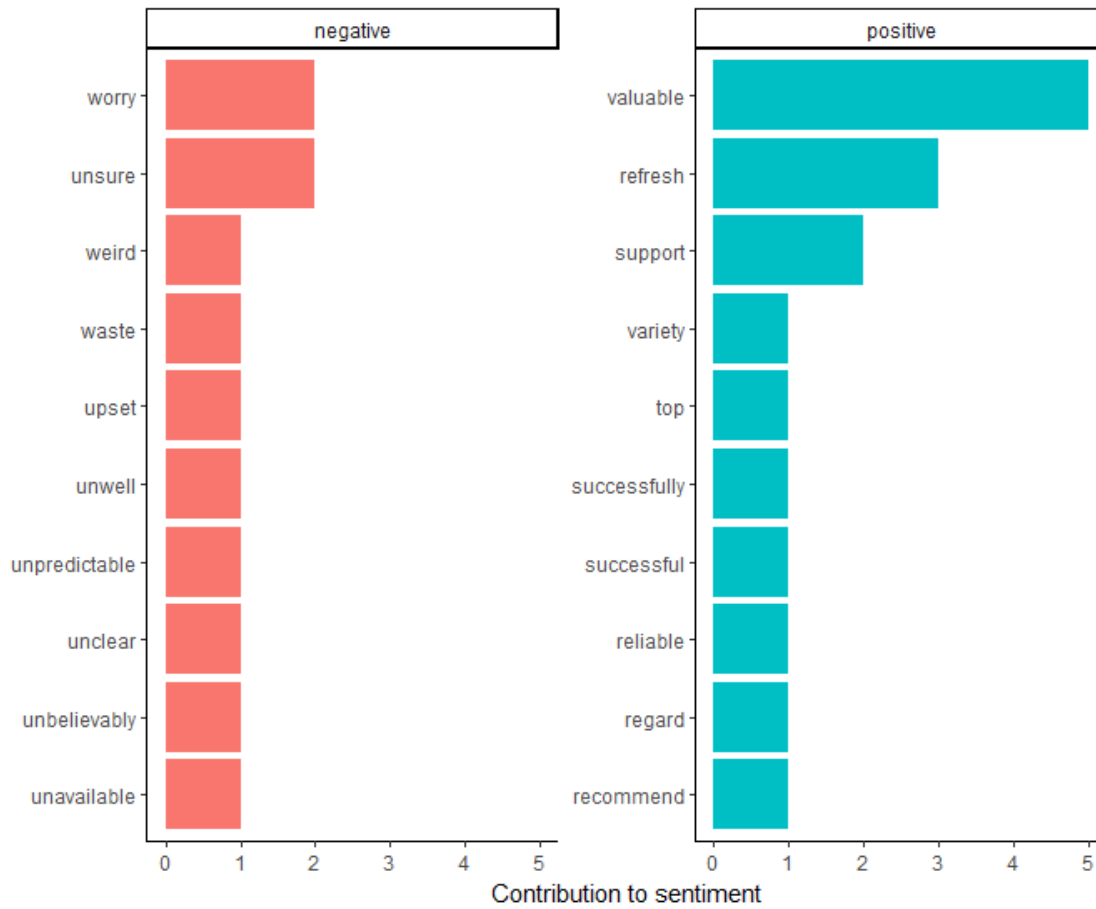


Figure 19: Comparison of word frequency use in 159 student comments about lecture recording by carer status



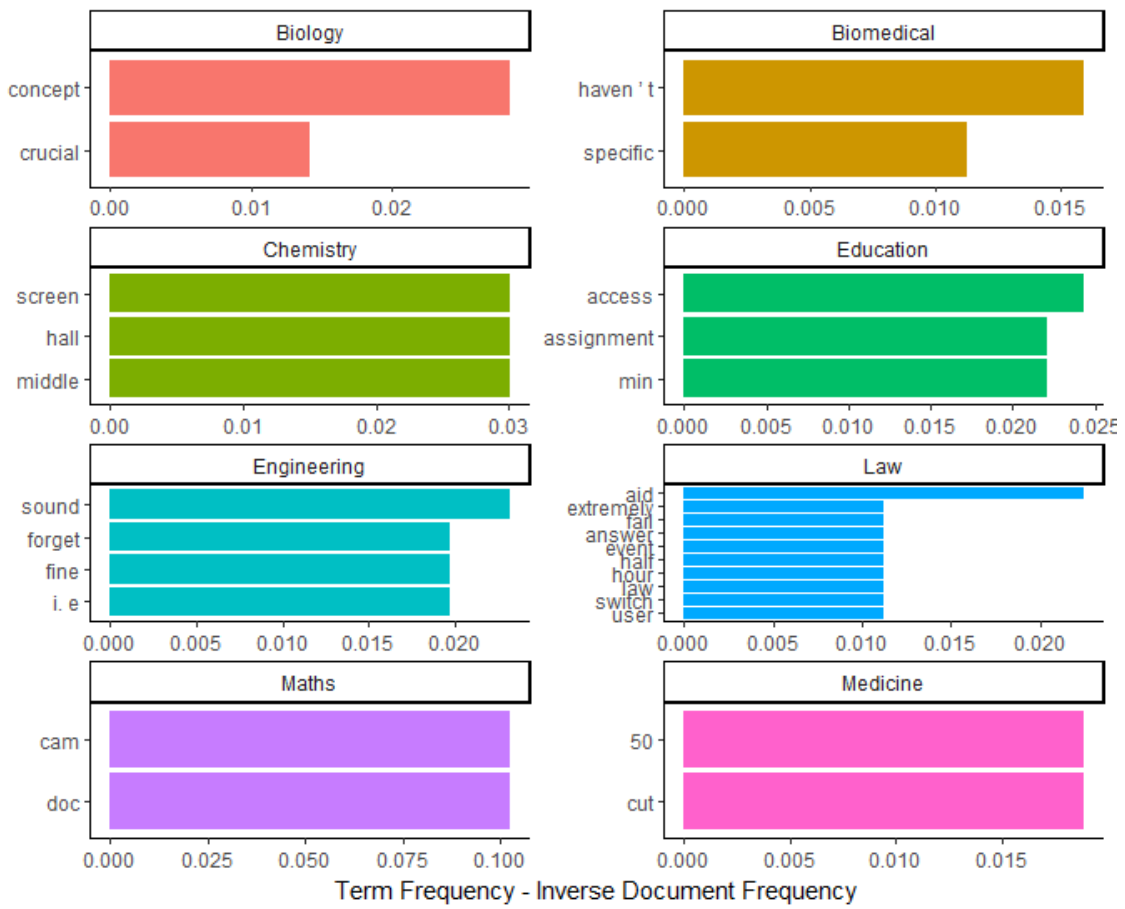
In Figure 20 a simplistic sentiment analysis suggests that negative feeling expressed in these comments is predominantly around ‘worry’ and being ‘unsure’, which is likely to be about how lecture recordings alleviate these feelings, given students did not report worrying more in lecture recordings in Figure 15. Positive contributions to the sentiment come mainly from lectures being discussed as ‘valuable’, or as a ‘support’.

Figure 20: Sentiment analysis for 159 free text comments on lecture recordings



A different measure of a term's importance is its Term Frequency-Inverse Document Frequency, which is a measure of how unique a term is within a document. Figure 21 described TF-IDFs by school. If a school had a particularly unique issue we would expect some words to have a very high TF-IDF. However, Figure 21 demonstrates that there are no terms that are particularly unique to a school. Another way to look at this is to say that no school is using words in a unique fashion here.

Figure 21: Term Frequency-Inverse Document Frequencies by School



Unsurprisingly, people with learning adjustments are more likely to use the word ‘disability’ (Figure 22). Students who did not identify as male or female used the words ‘mental health’ more commonly (Figure 23), although there were no notable differences across native language (Figure 24) or carer status (Figure 25).

Figure 22: Term Frequency-Inverse Document Frequency by learning adjust

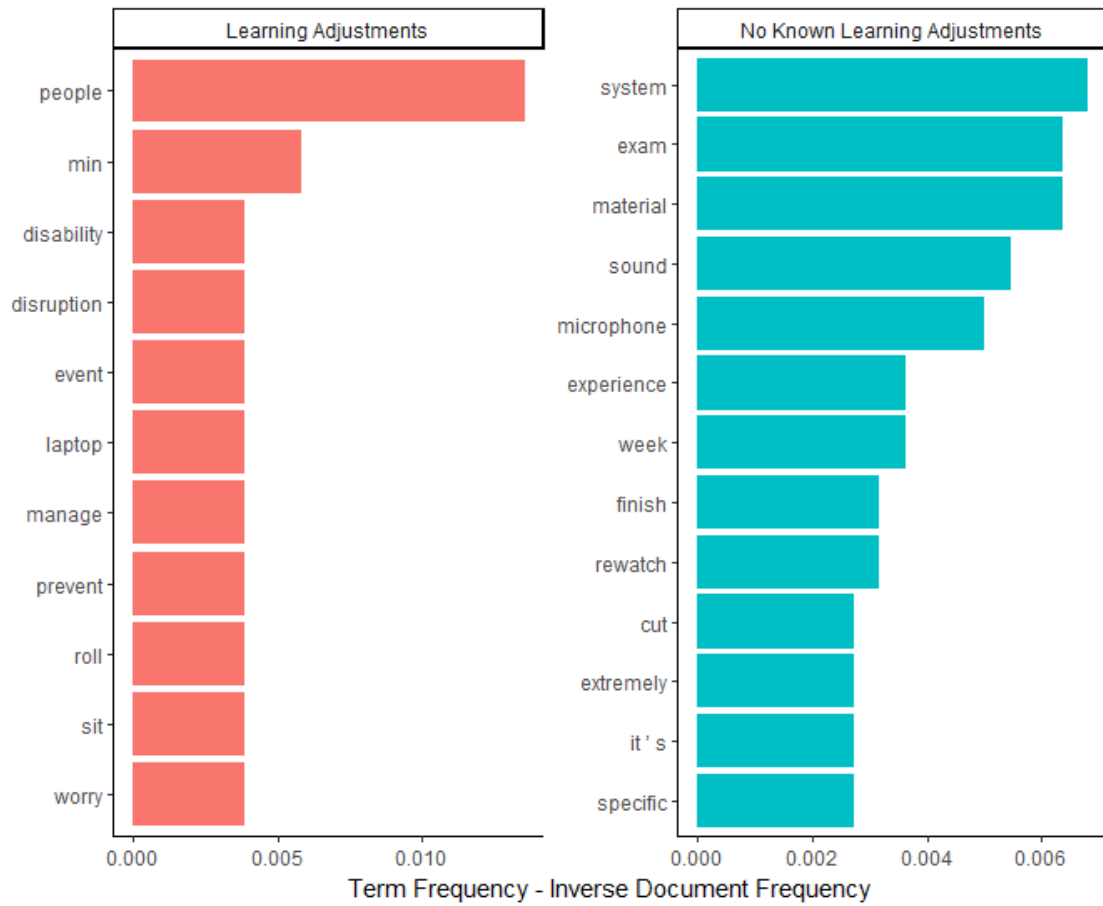


Figure 23: Term Frequency-Inverse Document Frequency by gender

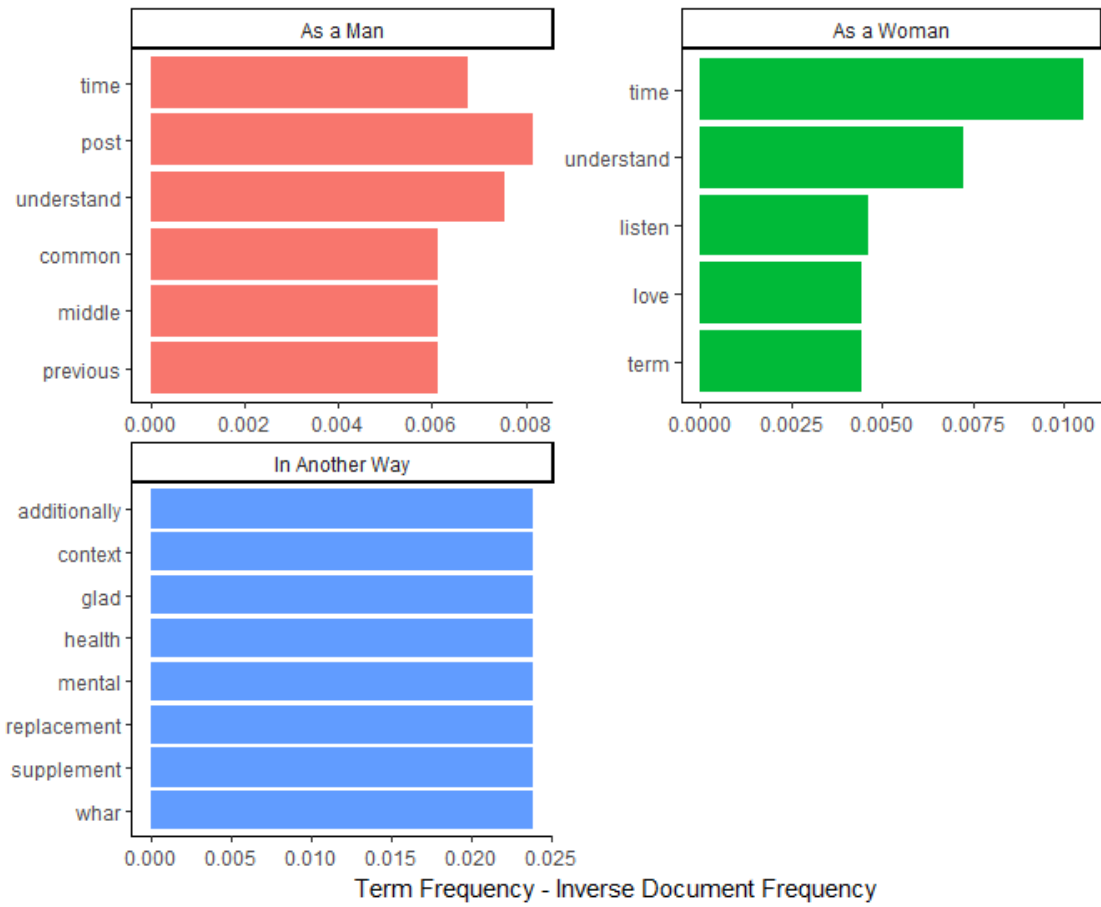


Figure 24: Term Frequency-Inverse Document Frequency by native language

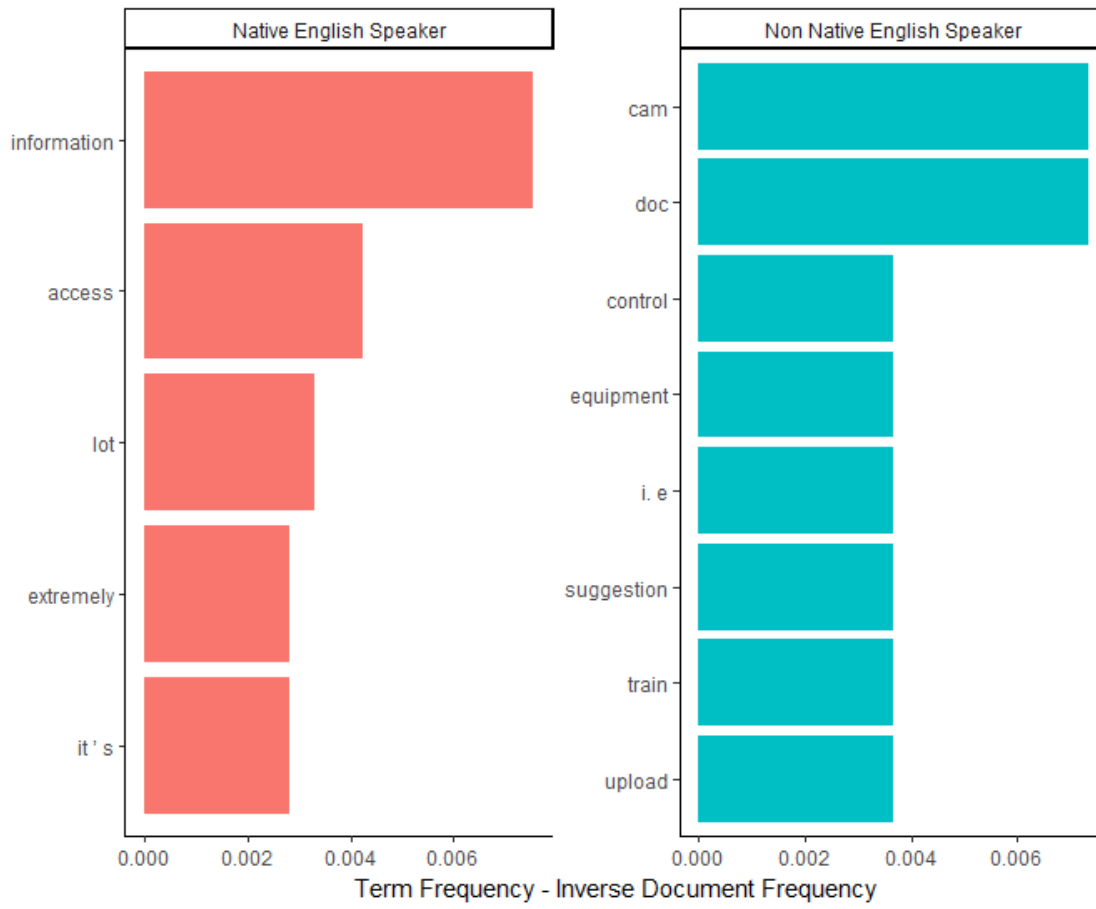


Figure 25: Term Frequency-Inverse Document Frequency by carer status

