

Quizzes and Polls to Support Teaching and Learning

 Poll Everywhere



3 WAYS TO USE POLL EVERYWHERE IN YOUR CLASSROOM

Create an interactive and engaged learning environment from anywhere.

IMPROVE STUDENT ENGAGEMENT THROUGH REMOTE LEARNING

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E-book by David Bryson

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David Bryson

I am currently a Senior Lecturer in College of Science and Engineering at the University of Derby teaching on the BSc (Hons) Forensic Science. I am module leader for the Forensic Imaging (including scientific photography techniques e.g. infrared and ultraviolet fluorescence) and teach on wide range of modules in the School of Human Sciences.

My research and publications include aspects of support for Learning and CPD, medical and medicolegal photography through the Journal of Visual Communication in Medicine.

I am on the Accredited Register of Medical Illustrators of the Academy for Healthcare Science approved by the Professional Standards Authority for Health and Social Care.

The aim of much of my work is the application of photography to science, for examples see my photolibrary <https://photolibrary.cladonia.co.uk>.

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Cheer up your MCQs with images

Rating: Easy

There are two ways to ask a Multiple Choice Question (MCQ) using images.

1. Load up your image and give a list of possible choices in the classic MCQ way, see Figure 1.

2. The more interesting way is to pose a question and give your choices as images to be selected, see Figure 2.

There are of course combinations of images and words that give a range of alternatives to the traditional MCQ. For example Figure 3 shows how text can be an image as can the answers.

Photographs and images

It is important to note that some images automatically resize when imported e.g. for a series of answers but others if they are large come in large.

So it is best to think small. If your images are stored in Adobe Bridge or on Lightroom do export your image as small sizes e.g. 1024 or 640 pixels in width.

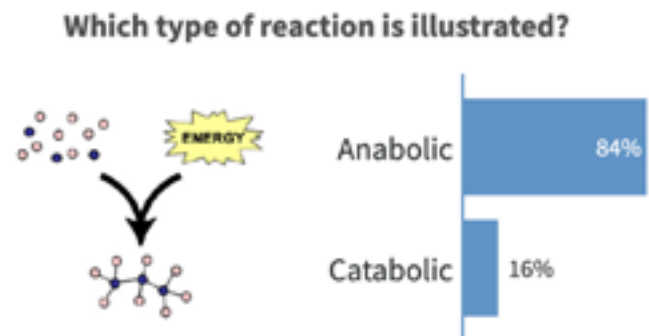


Figure 1. Question with image and choice of answer as text.

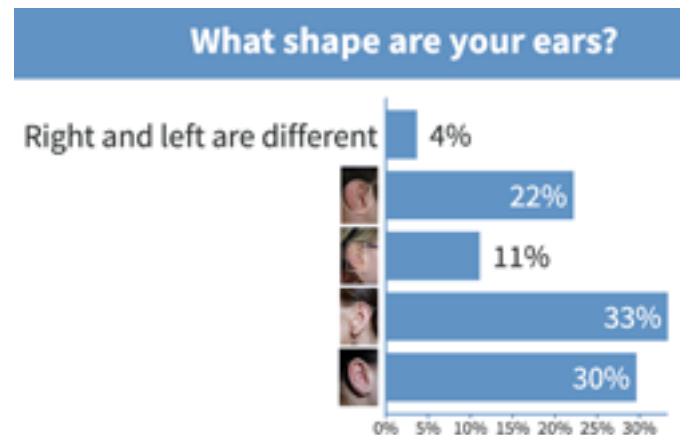


Figure 2. Question and image choices for a survey.

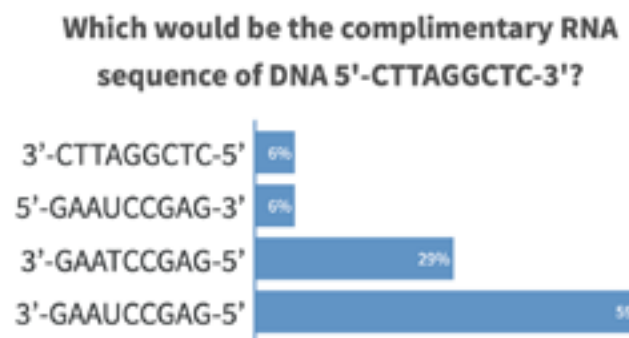


Figure 3. Question and text as image and text as image choices for answers.

Nothing like a bit of competition!

Rating: Easy and fun!

A great way to start a lecture is with a quick quiz on the last lecture's topic as a reminder or at the end of the lecture to see how much students have learnt or paid attention.

The competition is restricted to MCQs and they all have to be built into the competition from the start. No importing from other quizzes!

At the end the winner is seen on the leaderboard along with a cascade of confetti, see Figure 4.

The maximum score per question is 1000 relies on being correct and fastest.

Each student sees their personal score on whichever device they used as they go along and at the end.

Sequence to running a competition:

1. Make sure everyone who wants to join in has used the joining link.
2. Play. The question appears on screen.
3. On click the question and answers appear along with a countdown then question is locked. Timing can varied but is set for whole competition
4. Answer is highlighted and % who answered correctly/incorrectly.
5. Leader board comes up after each question and changes with each question as students move up or down the leaderboard.
6. Repeat for however many questions.
7. After the last question the leader is showered with virtual confetti.

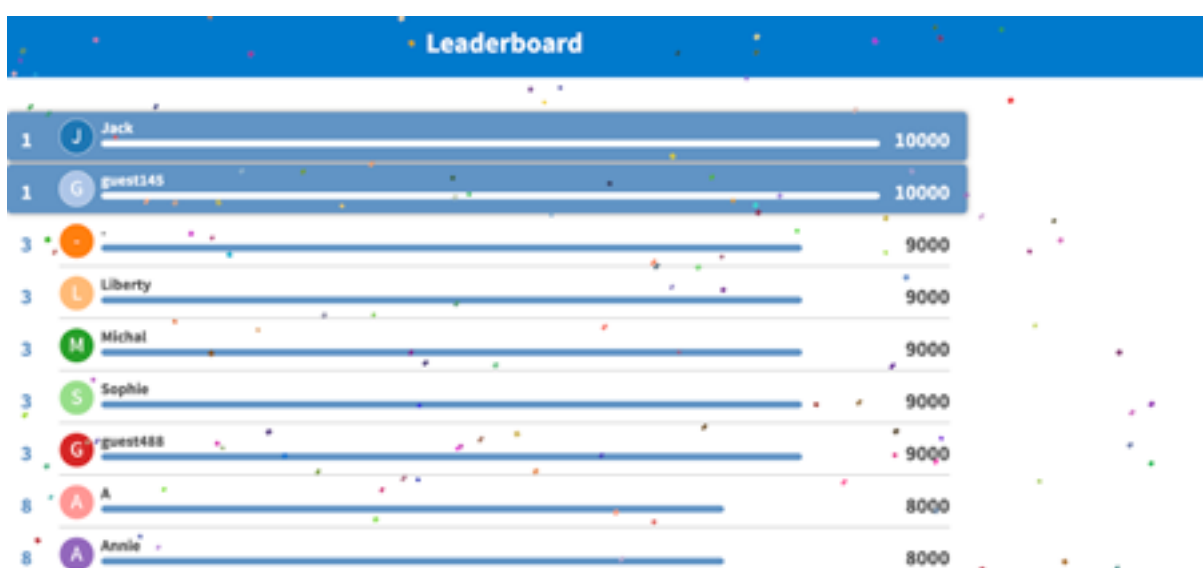


Figure 4. Final leaderboard at the end of a competition.

Images for visual surveys and polls

Rating: Medium

The example used commonly to demonstrate this feature is a map for participants to click on their country or origin. This might be good for an icebreaker activity 'Where in the UK is home' or for geologists i.e. where in the UK do you find igneous intrusions?

Where images can be useful in surveys and polls is for a visual choice for example I have used them for students to report back as part of a session looking at biometric features like the shape of ears, see Figure 5, or a checklist, see Figure 6.

The other type of activity is for health and safety by presenting a photograph of a laboratory set up with dangers that should be highlighted.

This kind of activity also works for highlighting what needs correcting in a piece of text i.e. citations.

For this type of poll the image is imported and each area on the image is created as a hotspot. These hotspots are named so that data can be extracted after the poll and seen visually after data has been input.

For a survey once students have access they can fill in the details as they want and it is more visually appealing compared to a Microsoft Forms survey.

This works well in the laboratory as everyone can enter data and the display of the final results helps round off the session and the data can quickly be exported and distributed.

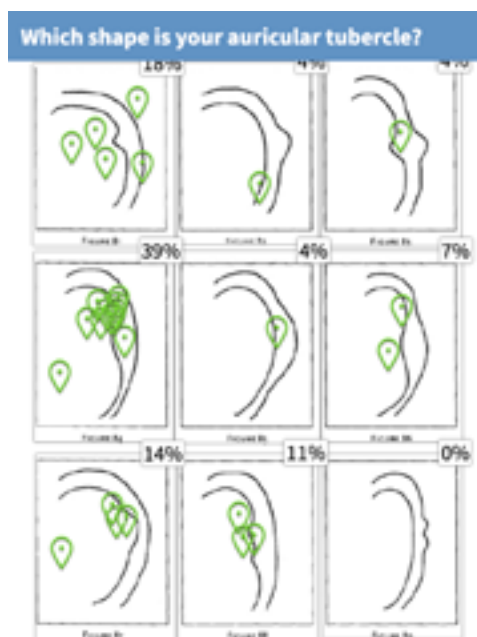


Figure 5. Image with percentages displayed after students have entered their data.

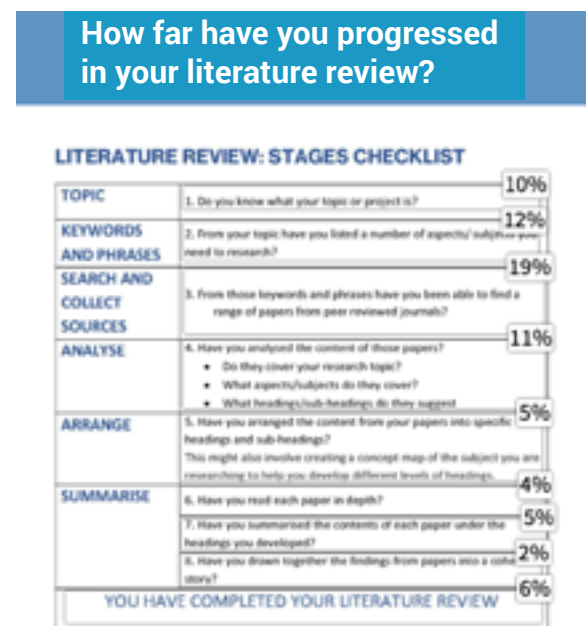


Figure 6. A checklist with a word document convert to an image works equally well.

Pitting cohort against cohort

Rating: Difficult

At the end of a module it is helpful where there is a multiple choice style exam to include a MCQ quiz in a session towards the end or for the final session of a module. Where there is more than one cohort it is possible to run a quiz with what is called in PollEverywhere "Segmentation". This means that I can pit my Human Biology, Biomedical Health, Biology and Zoology students against each other.

For an added extra it is possible to have live responses to questions. Do have to make sure students can't change their answers. Once the first few in a cohort have answered there are often audible groans as some of their colleagues answer incorrectly.

Unlike the competition there is no set timing for each question so I tend to control this manually and once a set number have responded I call for last responses and then lock down the question.

Early on you get a feel for how many have logged on and are joining in with a quiz. If in the initial stages you got 80 responses that is likely to remain fairly constant.

During the quiz it is possible to see how each cohort is doing in terms of % getting a question correct as in Figure 7, by looking at cohort % through a report and at the end to see which cohort is winning. This type of report is not the easiest to run so it is best to set it up in advance and re-run it during the session.

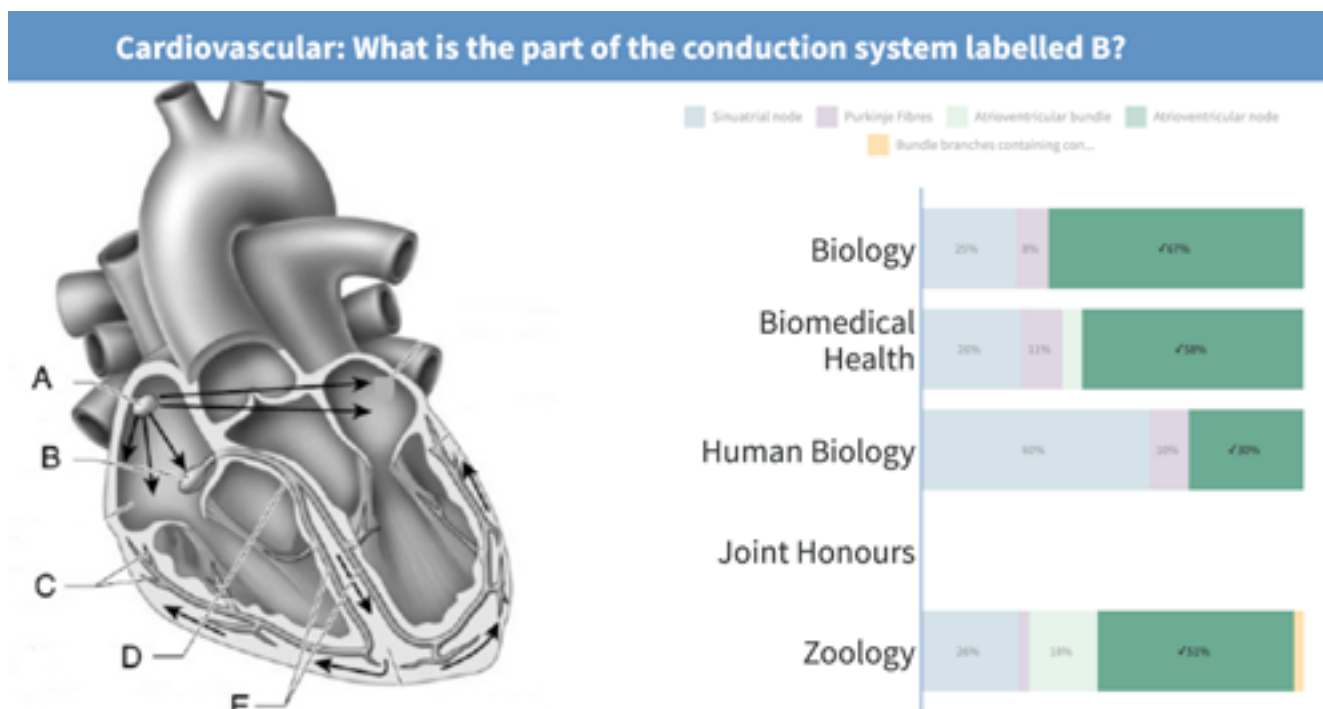


Figure 7. Final display after question has been locked down using segmentation. No joint honours came to this session.

Probably my favourite.

Rating: Easy once you think it through

Anyone who enjoys probability will love this Polleverywhere activity.

Coin toss

The best poll to start with is a simple coin toss. We all know that given enough tosses of a coin we will end up seeing heads and tails in the ratio of 50%/50%.

The poll uses a simple create Donut chart with a choice of two images one of heads and one of tails. I managed to find coin images of elephants for my heads and tails, see Figure 8 for what the student sees.

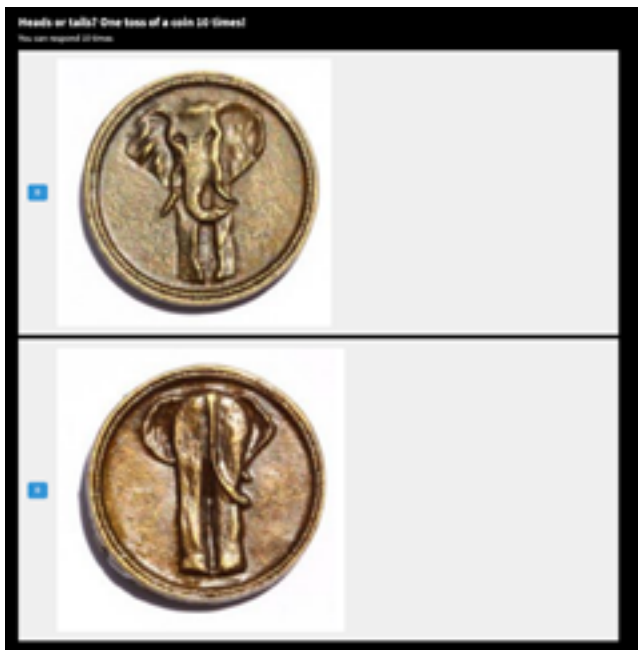


Figure 8. Heads or tails. For this question students can enter 10 coin tosses.

The first question asks for one toss from the whole class the second asks for 10 tosses of a coin. As we know the more tosses the more likely we are to achieve an even result. Figure 9 shows the view after everyone in the class had tossed a coin 10 times.

Two dice

The next step is to make things more complicated by using dice. Packs of 100 or more dice are relatively inexpensive via amazon so giving each student 2 dice is affordable.

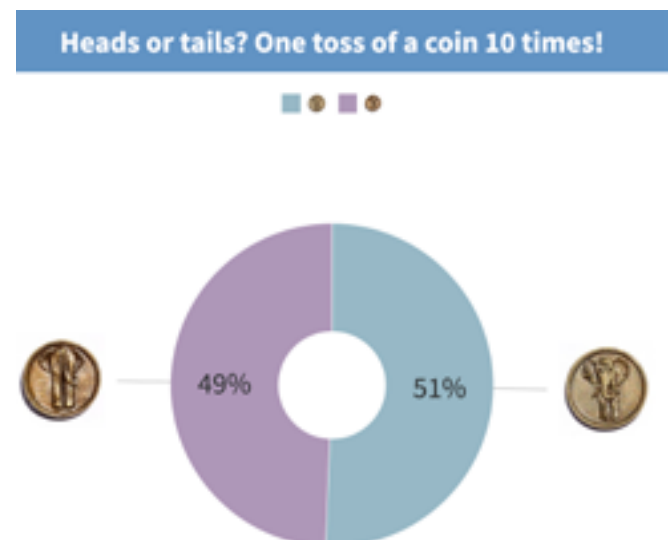


Figure 9. Heads or tails, visual result after each student has entered 10 coin tosses.

Given 2 dice the idea is to look at the predicted spread of scores from the dice throws so we can then create likelihood ratios for each score. Then we can test our predictions against reality.

Again I used the Donut chart but the visual settings do allow for either a vertical or horizontal bar chart. The results for one throw for each student can be seen in Figure 10. As might be expected there are fewer tosses of those combinations with the lowest frequency like 2, 3, 11 and 12.

When the experiment is repeated with ten tosses each there is a distribution that more closely resembles the predicted likelihoods, see Figure 11.

The beauty about these polls is that they can be run live so the numbers visually change as students enter their score after each roll.

The first run through I did was in a large lecture theatre with over 70 students. I did have over 120 but after the coffee break the sport science students didn't return even though I did include some football scores, even if the University network wouldn't let us see live betting!

Probably, there is that word again, partly due to attempting to explain Bayes Theorem to Foundation students including a wide range of cohorts. However, everyone else enjoyed the lecture and activity.

I repeated the session where I had far lower numbers but it still worked though obviously larger numbers are preferred.

Monopoly

The final activity was to see how many people ended up in jail after 3 throws the classic Monopoly scenario.



Figure 10. Two dice and one toss for each student.

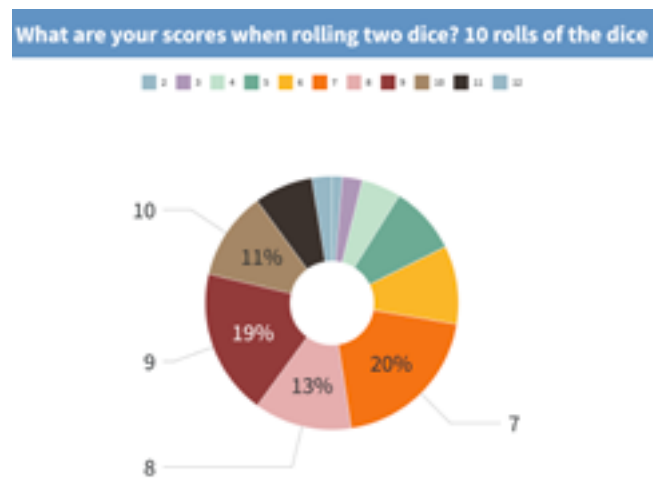


Figure 11. Two dice and ten tosses for each student.

Its all in the cloud, word cloud.

Rating: Easy

One of the most difficult activities in a lecture is asking for feedback to a question. You either get a clamour of answers and the loudest one wins. Actually that is probably the only one you hear as lecture theatre acoustics are more often designed for students to hear us rather than us to hear our students. The other system in a classroom again is highest hand wins with the least vocal not participating.

The alternative is using a word cloud this is the second choice in Polleverywhere when you click on create. All you need to do is to set up an open ended question ready for one word answers.

The real beauty is to running this live as the word cloud constantly adjusts and updates as more and more students participate also if you have designed your question carefully students can submit multiple times though you do need to make sure the responses aren't restricted.

The other feature is that the font size increases the more an answer is given by students. As you can see the evidence and document are the most popular answers in the word cloud in Figure 12.

If you are looking for longer responses then use open ended questions or better still upvote, see Activity 7.

What is the role of photography at a crime scene?

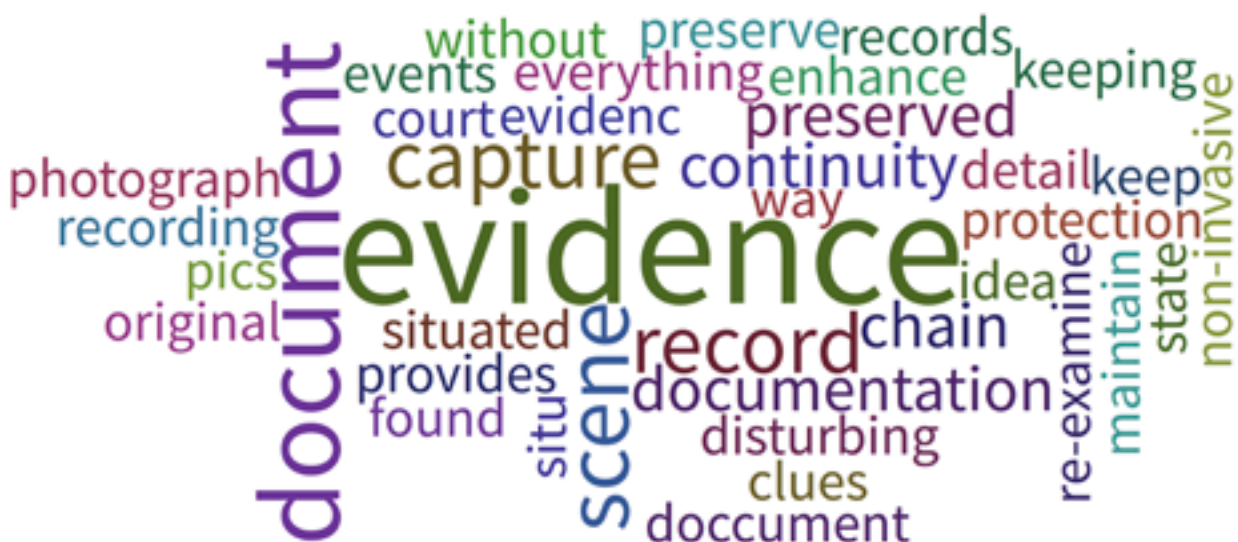


Figure 12. Question has multiple answers to produce a word cloud.

Q&A Upvote and Leaderboard

Rating: Easy

These activities are similar to the word cloud but designed to collect longer questions or answers or responses to set answers or questions.

One way to use these activities is as part of a tutorial session where you want to know what students want help on to provide at least an initial focus for support. Classically this is where we could hand round post-it notes or file cards for everyone to submit their questions and then collate them into similar ones to answer first or to answer one by one.

Upvote is part of Polleverywhere's array of activities. Click on 'More' at the end of the first row of activities to reveal. The kind of responses and the effect of upvoting can be seen in Figure 13.

You can also insert an image and ask for opinions which again may be upvoted.

The aim of the leaderboard is to pre-populate with a range of answers and after voting a range of these can be shown for example as a top ten. This is ideal if you want to narrow down discussions or follow-up to specific preprepared topics rather than students sidetracking your aim for the session or for an assessment asking questions which are in the assessment brief!

The array of activities includes duplicates i.e. Brainstorm is the same as upvote just with a question already in place 'What are your best ideas? You can vote on the ideas submitted.'

**Do you have any questions about the research publication?
Can boost a question if you have the same question.**

Top

1	When will the video be due in by?
1	So are we supposed to create a presentation and submit that by 3rd may?
1	How long does it have to be?
0	can we still use our support plan on the deadlines?
0	Do you have any guidelines for what should be included/talked about in the presentation?
0	Regarding CW2, is there an extension on the deadline for the final reflection?
0	What needs to go into the abstract?
0	If we chose to present a poster, how long does the audio introduction need to be?

Figure 13. Question has multiple answers and three have been upvoted.