Any questions?

A concise guide to navigating the Q&A session after a presentation

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The ability to give an effective and engaging presentation is a crucial skill that every scientist must master early in his or her career. It is not only a useful skill for conferences, meetings and seminars; a successful and convincing presentation can also open the door to fruitful collaborations, successful grant applications or a new job. Many researchers therefore spend a considerable amount of time and effort preparing and practising for an upcoming talk. In fact, they often rehearse their presentation to the point they can recite the entire talk on cue.

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However, few scientists practice taking and answering questions from an audience. Mastering this skill is important because even the most well-rehearsed talk can be easily ruined by a poor Q&A session. After all, nearly anyone can memorize a talk, but it is the way a presenter handles questions that best demonstrates his or her knowledge and understanding of the subject. Moreover, in scientific talks, it is often the last impression—that is, the Q&A session—that counts. Therefore, preparing for the Q&A is as important, if not more important, than preparing for the talk itself.

The focus of this article is therefore on preparing for and answering questions effectively and the steps that can be taken to improve this skill. Many readers might recognize the situations outlined in this article; although some of these might seem daunting, there is a solution to every one.

The first step in conducting an effective Q&A session is to ensure a smooth transition from the end of the talk to the questions. An abrupt ending leaves the audience unsure whether the presenter is finished, or whether they should clap or start asking questions; not welcoming questions might make a presenter seem defensive or unwilling. To prevent this awkwardness, a presenter can end the talk with an invitation to the audience to ask questions. Presenters who smile and make eye contact with the audience convey confidence in the information presented and openness to discussing their findings. If possible, it is helpful to move away from the podium and closer to the audience. This creates a more informal setting and makes it easier for the speaker to hear questions. The next step is to take charge of selecting questioners. Whether or not there is a moderator, presenters benefit from taking control of the Q&A session, as it allows them to better manage the pace of questioning and decide when to move on to the next question.

Next, it is crucial to listen carefully to each question. Although this might seem obvious, presenters often anticipate or misunderstand a question, and provide an answer that has little to do with what was originally asked. It can also be useful for the presenter to repeat the question. This gives the presenter time to think about an appropriate reply and the questioner a chance to clarify their question if the speaker has misunderstood it. Moreover, it ensures that the audience know what was asked in case they have been unable to hear it—a frequent occurrence.

With formalities out of the way, it is time to formulate an answer. Before doing so, however, one important task is to decode the question.

Questions are often statements in disguise, so it is important to determine the intentions of the questioner. In fact, most questions after a scientific talk will fall into one of the following categories.

‘Suggestion’ questions are not questions at all: they are, rather, advice along the lines of: ‘I study something related and have used approach xyz. You might be able to use the same approach for your project.’ The questioner either tries to be genuinely helpful or to seem well informed about the topic. The best response to these ‘questions’ is to acknowledge the advice by agreeing that it is a good idea, and that it would be worth pursuing.

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‘I don’t understand’ questions indicate that the questioner is having trouble understanding some aspect of the talk—or has been checking e-mails. Although these questions could pertain to a number of things, they usually relate to a specific experimental protocol, data set or conclusion. Even if the speaker has clearly explained the point, it is best to be polite and repeat the explanation. The questioner might not have heard it the first time, as listeners often read and analyse slides instead of listening to what the speaker is saying. When responding to these questions, it can be useful to go back to the slide that presents the point or data in question. If it is necessary to restate something, alternative words or a different approach to the explanation might be useful. This is particularly helpful if English is not the first language of

either the speaker or the questioner. It might also be helpful to use a metaphor to help the audience understand a complex concept, and/or to try explaining the research in a manner that would enable someone from outside the field to understand it. Metaphors and alternative explanations often require forethought and preparation. This provides an incentive for practising the Q&A session with colleagues and laypeople beforehand, in order to get a feeling for the range of questions that might be asked and to ascertain which parts of the presentation might need improvement or clarification.

'We have found' questions are another example of 'questions' that are not really questions. The 'questioner' is usually taking the opportunity to discuss his or her own research findings. Usually, these comments are benign and complement the presenter's findings, in which case the presenter can thank the person for his/her contribution and move on.

On the other hand, if the questioner is using his/her data to challenge the findings that have been presented this can turn into an 'I don't believe you' question. The questioner is not convinced that the data are accurate or that they support the conclusions. Such

questions usually imply a discrepancy with the data or contradiction in the conclusion, and might even have a threatening undertone. Presenters who are familiar with the referenced data, could answer: 'Yes, but they used a different cell type or species or model or technique, which might be responsible for the discrepancy.' Otherwise, presenters might need to acknowledge the point, but assert that they would need to review the findings in question before answering properly. Even when their conclusions are challenged, presenters should remain confident about their data or they should not have presented it in the first place.

All of these questions are not particularly satisfying to answer, as they do little to explore the research further or start a genuine discussion about the data. The latter two types of question are more interesting in this regard, as they offer the possibility of extending the scope of the talk and the knowledge being discussed.

'Probing' or 'connecting' questions often start with 'Do you know of any...' or 'Is there any literature pertaining to...'. In this case, the questioner usually wants to know if there is a link between what has been presented

and his or her own research or a related interest, and is genuinely interested in additional information. Presenters can share this information, even if they do not know all the details, by briefly describing what is known in the literature and mentioning investigators that have published related findings.

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'What do you think' questions are often the most satisfying ones, because they encourage the presenter to reflect on his or her findings and even generate new ideas. Such questions often come from a faculty member who wants to either encourage the presenter to think about their research or assess their knowledge base. It is best not to limit the answer to those conclusions that are soundly supported by the presented data; presenters should also mention other experiments that might provide new insights, and refer to the work of other investigators that support the opinion

given. The presenter should be willing to speculate on possible future experiments and their likely outcomes. It is not helpful to answer this question with 'I don't know', or 'That information is not known' because the questioner is asking for an opinion, not facts. When drawing a complete blank, it is acceptable to say 'That's a good question. I'm going to have to think about it'. It is also appropriate to ask the questioner how he or she would answer the question.

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Once the question has been decoded, a presenter can proceed with answering it. It is best to begin by identifying a positive quality of the question and stating it. An example of a positive response is 'That's an insightful (or interesting or challenging) question.' No matter how difficult a question is, it usually has some redeeming quality. Responding positively and confidently will encourage an environment in which the audience feels comfortable asking questions, and should lead to a more productive Q&A session.

There are, of course, many problems and pitfalls that can arise during a Q&A session. The challenge here is twofold: first, to quickly identify a problem and second, to promptly remedy it. It is therefore helpful to be aware of the following potential situations.

Not knowing the answer. This can be a common occurrence, especially early in one's research career, because questioners often ask questions that are beyond the scope of a presenter's research or knowledge base. It is best to accept this fact and remember that it is sometimes acceptable not to know the answer. The key in this situation is to refrain from speculating—unless it is a 'what do you think' question. It might be helpful to restate the question in order to gain some time to think, but the safest response is to state, 'I'm sorry, but I don't know the answer.' If the questioner asks about something for which there is no data, it is of course prudent to say so. Another approach is to redirect the question to a colleague or lab member in the audience who might know the answer, or ask the audience if anyone else can offer some insight. In any case, the time for Q&A

is usually limited, so it is advisable not to waste too much time here.

Someone asks questions that pertain to ongoing or planned work. It is tempting to talk about unpublished results, but it is prudent not to reveal too much information. It might not be appropriate to disclose such data or ideas, either because these are preliminary and remain to be validated, or because it creates the risk of someone else using them. Instead, it is safe to say, 'That's something we are very interested in and currently looking into.'

The language barrier. If the questioner asks something that does not make sense, it is sensible to politely ask them to rephrase the question. Once a presenter feels that he or she understands what the questioner is asking, it is helpful to restate the question. Even if a presenter does not understand the specific question, or if they are unsure of the intent of the questioner, they can usually respond to what they understood the question to be. However, it might sometimes be necessary to suggest talking to the person after the seminar.

An engaged audience is more attentive, might ask more relevant questions and suggest novel and valuable ideas

Being asked the same question again. There is no value in embarrassing the questioner by pointing out that someone else has already asked the same question. As mentioned above, the questioner might not have heard the information the first time, so it is safe to restate the answer and, if needed, display the corresponding slide to avoid embarrassment.

The questioner will not stop talking. If somebody is not happy with the response and keeps prompting the presenter for more information, it might become necessary to save time and ask them to continue the discussion after the session, before moving on to another question. If this leads to disagreement, it is important to maintain composure and control of the dialogue. It is understandable to be enthusiastic about the data and want to defend it vigorously, but it is not acceptable to be argumentative with the audience. When things seem to be at an impasse, it is time to move on and say: 'I'd like to give other audience members a chance to ask questions, but we can continue this discussion after the seminar.'

Generally, a presenter should respect the audience and not embarrass people who have asked questions; for example, by starting answers with the phrase 'As you should know...' or by giving a pithy answer that implies that the question was not worthy of a more complete answer. Again, it is prudent to find a positive quality of the question and point it out before moving on. It is fine to use humour when answering, but it should not be at the expense of a colleague, or someone else's data.

Finally, there is always the possibility that nobody asks a question and the end of the talk is followed by an uncomfortable silence. Several reasons can account for this. First, the speaker went over the allotted time, which can aggravate people since they have other things to do. It also shows poor preparation and conveys a lack of respect for the audience and other speakers. Of course, the best defence is to practice and time the talk accordingly.

Other reasons for not getting questions is that the talk was too complicated, outside the area of interest of the audience or poorly presented. In addition, audience members often refrain from asking a question if they think everyone else in the room knows the answer, and they do not want to ask a 'stupid' question. In any of these situations, it is possible to encourage questions by saying 'I know there were several results that were complex, counterintuitive or unexpected. Can I clarify any of the data?'

Conversely, engaging presenters will probably generate an enthusiastic discussion during the Q&A session and can encourage audience members to continue talking beyond the allotted time. However, in the absence of a session chair, it is the responsibility of the presenter to ensure that the Q&A session does not overrun. If time has expired, but people continue to raise their hands, one can simply state 'It looks like we've run out of time. If anyone has any further questions, please contact me after the talk and I'd be happy to discuss these with you.' This approach enables presenters to use the Q&A session to trigger a dialogue or discussion afterwards during the coffee break.

Encouraging questions, communication and participation creates a beneficial experience for both the presenter and the audience. An engaged audience is more attentive, might ask more relevant questions and suggest novel and

valuable ideas. Furthermore, an interesting and engaging Q&A session can lead to ongoing discussions, and thereby facilitate successful collaborations and future invitations to speak; meeting organizers tend to invite speakers they have had positive experiences with before. A good Q&A session and ensuing discussions during the coffee break also help to develop the professional network of the presenter.

Finally, reflecting on the questions asked during the Q&A session not only will enable the presenter to improve future talks by adjusting the content or approach of the presentation, but also might generate new ideas to improve his or her own research.

In summary, a well-conducted Q&A session can contribute to a mutually beneficial situation in which the presenter and the audience walk away from a scientific talk with new ideas and renewed enthusiasm for research.

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To protect and save

A new chapter opens on biodiversity conservation

Philip Hunter

In the wake of the admission from the United Nations (UN) that, to date, efforts have failed to even slow down the rate of extinction across almost all plant and animal taxa (CBD, 2010), the fight to reverse the human-induced loss of biodiversity is entering a new chapter. The failure to achieve the targets set in 2002 for reducing decline has led to a revised strategy from the Campaign for Biodiversity (CBD). This new approach recognizes that species conservation cannot be treated in isolation from other issues facing humans, including climate change, water scarcity, poverty, agricultural development and global conflict. It also acknowledges that declining biodiversity cannot be tackled properly without a more accurate inventory of the species in existence today. Thus, a large part of the strategy to combat species decline focuses on building an exhaustive catalogue of life.

The Global Strategy for Plant Conservation includes such a plan. The intention is to compile an online flora of known plants by 2020, which should enable comprehensive conservation efforts to gather steam. Peter Wyse Jackson, president of the Missouri Botanical Garden in the USA, said that around 25% of the estimated 400,000 plant species in the world, are thought to be threatened. He said that around 850 botanical

gardens have, between them, collected around 100,000 species, but only a quarter of these are from the threatened group. "World Flora online will then be an essential baseline to determine the status of individual plant species and threats to them," Jackson explained. "By 2020 it is proposed that at least 75% of known threatened plants should be conserved both in the wild and in existing collections."

...an online flora of known plants [...] should enable comprehensive conservation efforts to gather steam

Missouri Botanical Gardens will have an important role in the project and Jackson commented that the first step of the plan has already been achieved: the establishment of an online checklist of flora that is needed to build a comprehensive database of the plant species in the world.

Yet, some other plans to halt species decline have drawn criticism. "In my opinion, whilst such international targets are useful to motivate individuals, states and wider society to do conservation, they are not necessarily realistic because they are often 'pulled out of the hat' with very little

science behind them," commented Shonil Bhagwat, senior research fellow at the School of Geography and the Environment at Oxford University.

The revised CBD plan specifies measures for reversing the decline in biodiversity. One target is to enlarge protected areas for wildlife, within which activities such as logging are prohibited. Ecological corridors could then connect these areas to allow migration and create a network of 'safe' places for wildlife.

Such a corridor is being created between two parts of the Brazilian Atlantic rainforest—the Pau Brasil National Park and the Monte Pascoal National Park—both of which are already protected. "Well-managed protected areas keep away biodiversity threats, such as deforestation, invasive species, hunting and poaching," explained Arnd Alexander Rose, marketing manager for Brazil at The Nature Conservancy, a conservation organization that operates on all continents. "We think that the connectivity between the national parks is essential for the long-term permanence of local species, especially fauna," Rose said.

Worldwide, only around 6% of coastlines are within protected areas, but around 12% of the total land area is protected—a figure that is perhaps higher than many would expect, reflecting the large size of many national parks and other designated wildlife zones. Nevertheless, the coverage of different habitats varies greatly: "Only 5% of the world's temperate needle-leaf forests and woodlands, 4.4% of temperate grasslands and 2.2% of lake systems are protected" (CBD, 2010). The aim of the CBD is to increase the total area of protected land to 17% by 2020, and also to expand the protected coastal zones, as well as extending the area of protected oceans to 10%.

Things at sea, however, are different; both in terms of biodiversity and protection. The biggest threat to many marine species is not direct human activity—poaching or habitat encroachment, for example—but the impact of increased ocean acidity due to rising atmospheric carbon dioxide levels. Halting or reversing this increase will therefore contribute to the marine conservation effort and biodiversity in the long term.

However, the first task is to establish the extent of marine biodiversity, particularly in terms of invertebrate animals, which are not well catalogued. Ian Poiner is CEO of