
How to ask the right questions

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We ask questions all the time but rarely do we stop to think about how we're asking.

"That's a good question!" is often our reply when we're asked a question that we find difficult to answer.

But is a good question characterised by being difficult to answer?

"No, not necessarily," is the answer given by Vincent F. Hendricks, professor of formal philosophy and logic at the University of Copenhagen. He knows what makes a question good and will guide us in the art of asking good questions.

"Asking a good question is not just something you do," says Hendricks. "We can all ask, 'What's for dinner?' But we have to think carefully if we move up the hierarchy. Do I want the answer to something specific or just an assessment? You have to ask yourself that type of question before you can ask a good question."

Context is key

As a whole, there are two types of question you can ask and each of them open for their own types of answers.

- Open questions are good if you want an answer that includes consideration and assessment, for example: "What's good about going out on the town on Friday evening?"
The danger of asking open questions is that they can be too open – for instance: "What is the most important problem we must solve?" A question like this can be so open that you hardly know what to answer. What type of problem is being talked about? Is it about getting a good social life in the sixth-form college class? Or about the future of the Earth?
- Closed questions are good if you want a very clear answer, for example: "can you ride a one-wheeled bicycle?" You can only answer this type of question very simply, in this case 'yes' or 'no'. The danger with closed questions is that they often produce answers that make things simpler than they are in reality.

Journalists on TV often ask politicians 'yes/no' questions. The objective is to get them to answer the questions clearly. But although closed questions are possibly effective in these situations, as a rule they're not the best way of asking questions if the goal is to become better informed, says Hendricks.

"A good question is not necessarily one you can answer 'yes' or 'no' to," he says. "The best questions are often those where your answer depends on conditions or qualifications."

Hendricks says, that open questions invite reflection but they are not without problems – they can also be too open. "Take for instance the question: 'What is the most important doctrine in the world?' Here you have no frame. Are we talking economics, culture or politics? That is not immediately clear. The question is so open

that it doesn't define a clear frame for answering it," he says.

This is where context becomes important, says Hendricks. Take the question 'What is the best model for a robust society in Afghanistan?' -- "here we know what the context is -- it's the situation in Afghanistan and it relates to types of government, the composition of the Afghan population, their levels of education, and so on," says Hendricks.

Politics is riddled with bad questions

If you follow Danish politics it should be clear to you that context is important when questions are to be asked. Politicians are experts at talking in all directions simply because the journalist fails to set a clear framing for the question.

"Politicians can spend all the time in the world to discuss the frame instead of answering the question," says Hendricks. "If they are discussing the question of how we solve the problem of unemployment in Denmark, the discussion might develop into how the unemployment figures are calculated."

Politicians in Sweden are also good at discussing the frame for the questions instead of the questions themselves. Swedish TV therefore did something a little untraditional at the last election to the Swedish parliament.

"For the televised debate with all the party leaders before the election, the TV anchormen did something smart," says Hendricks. "They asked all the party leaders in advance to agree on some fundamental terms and facts: the gross national product is this figure, the number of people in employment is that figure, and so on. They all agreed about the figures -- the facts -- in advance, and the result was a far more enlightened debate on how to tackle Sweden's problems."

The three rules of questioning

With our knowledge about good questions, we can list three rules of thumb for how to ask good questions:

1. The framing should be obvious. In this way, the person being asked knows the context in which the question is asked. This is how you avoid talking at cross-purposes.
2. Establish some agreed facts. The more you agree about the question's framing, the clearer the answer can be. For instance, a socialist can ask a liberal a question with an obvious frame: "What should we do to avoid a new economic crisis in Denmark?" But they do not agree about the facts, and the socialist doesn't get an answer that's meaningful to him. The liberal says the public sector is to blame while the socialist says the banks and top managers' greed are to blame.
3. Ask a short, clear and precise question to avoid ambiguity. If any doubts arise over how to answer the question, you'll get a bad answer because you've asked a poorly formulated question.

Science asks good questions

From time to time, politicians will try to get the terms and facts in order by appointing a commission to review a problem. Unfortunately, however, the recommendations of the commission will often be accused of pandering to a certain political view.

In the world of science it can be a little different. Scientists try to present the fundamental terms and the pertinent facts for their research when they write their scientific papers. And they take virtue in presenting their terms so clearly that others can assess them critically.

"That's why it is so important that scientists describe their experimental set-up when they write a scientific paper," says Hendricks. "You must have an experimental set-up that is so thoroughly thought through that nature gives you as clear an answer as possible. And others must be able to criticise your set-up on an enlightened background – and verify your results."

Good scientific questions change reality

The way in which researchers try to create clarity about their research is one thing. The questions that they ask is another thing altogether. When scientists really make the headlines with important new discoveries, it's because they have asked good questions that change our view of how the world makes sense.

That was something the famous philosopher of science Thomas Kuhn discovered in the 1960s. He discovered that asking really good questions is actually very, very difficult, says associate professor Claus Emmeche, who is the director of the Centre for the Philosophy of Nature and Science Studies at the University of Copenhagen.

Kuhn discovered that researchers who study the same things -- for example astrophysicists -- agree on the very fundamental facts. They are so much in agreement that they can no longer question these facts. Kuhn calls such fundamental facts that everyone agrees on 'a paradigm'.

"The questions you ask about a scientific mystery that you're trying to solve are typically already allowed within the frame of the normal scientific paradigm you're working in," says Emmeche.

Science can topple paradigms

But sometimes the paradigms are forced to change. This happens when a great scientist manages to ask a really good question that's impossible to answer within the old paradigm.

One example of this is the story of the astronomer Nicolaus Copernicus who asked in 1543: "Could it be that Earth orbits the Sun?"

At the time, this could be a dangerous idea to suggest to anyone -- the people and institutions of the time were firm believers that Earth was the centre of everything -- but Copernicus' scientific observations didn't align with this notion. That allowed him to ask his question.

"If the paradigm doesn't seem to fit any more and anomalies, that is strange observations that cannot be explained within the predominant frame, accrue, then researchers are no longer satisfied by asking questions within the frame of the paradigm, says Emmeche.

Instead they will go on and challenge the predominant assumptions of the paradigm, he says. "This can perhaps lead to more decisive, radical new thoughts, new paradigms and new frames for new questions." Which was exactly what happened -- albeit it took some time -- when Copernicus asked his question.

Everyone can ask good questions

When you read a question like the one Copernicus asked it'd be easy to conclude that it's a very simple question. Which would be correct, says Hendricks.

"You often get the impression that scientists ask questions in a very special way," he says. "But the method is really the same as when you ask other good questions. Fortunately, everyone can ask good questions -- both in science and in everyday life."

 [Everyone can ask a good question -- but do we really know how we do it? \(Photo: Shutterstock\)](http://www.shutterstock.com/pic-136147787/stock-photo-girl-full-of-doubts-and-hesitation-girl-and-many-question-marks-above-head.html?src=cs_l_recent_image-1)
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Fact box

Are you in Copenhagen during Science in the City Festival from June 21-26?

If you are, you could get the chance to ask science your very own question.

ScienceNordic's partner Videnskab.dk is hosting live "Ask the Science" sessions from the media tent in Carlsberg district in Copenhagen.

Four scientists will be on the panel and you can ask them anything you want during the sessions:

"What's out there? On dark matter and other strange things in outer space"

Steen H. Hansen, associate professor, Dark Cosmology Centre - University of Copenhagen

Time: Thursday 6/26 at 10am

"How can children avoid asthma and allergies?"

Bo Chawes, Danish Pediatric Asthma Center

Time: Tuesday 6/24 at 12am

"Are tattoos dangerous? And what can colourants in your skin do to your health?"

Jørgen Serup, professor at Bispebjerg Hospital (Copenhagen University Hospital)

Time: Tuesday 6/24 at 2pm

"What will cocaine and other drugs do to your brain?"

Claus Juul Løland, associate professor, University of Copenhagen

Time: Monday 6/23 and Thursday 6/26 at 11am

Fact box

The EuroScience Open Forum (ESOF) is Europe's largest science conference, hosted every second year by an European capital city.

Copenhagen is hosting this year and from June 21 to 26 you can meet and hear world-class researchers from more than 40 different countries explain about their research.

You can also attend the free-to-public Science in the City Festival which is held simultaneously in the Carlsberg district in Copenhagen.

At Science in the City there'll be daily science shows, debates, exhibitions, and examples creative science communication.

ESOF and Science in the City is organised by the Danish Ministry for Higher Education and Science.

Read more at www.esof2014.org [10]

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