Asking Great Questions

Questioning and learning are the key differences between data science and a team just looking at data.

Remember that data science is about using the scientific method to gain insights. Asking good questions is the core of this scientific method.

As the leader of your data science team, you'll need to make sure that your team asks good questions.

One of the best ways for you to do this is to set up a good environment to exchange ideas.

The research lead is the questioning leader who makes sure that the team asks good questions. The research lead should also focus on learning and not judging.

Everyone on the team should strive for deep listening, which is a more focused way to listen to each other's ideas, and be able to push back against these ideas without feeling judged.

A good way to set up this environment is to have question meetings. In these meetings, participants are encouraged to ask questions before making statements.

This is sometimes called a question first approach. These meetings are about creating the maximum number of questions. They're focused on everyone asking their questions and listening. If you are the research lead, discourage anyone from bringing their smartphones or laptops. You want everyone focused on listening.

Question Types

You'll want to know how to separate good questions from those you can leave behind.

A good way to do this is to think about different question types.

Each type has its own benefits and challenges. If you're the research lead, you can help the team identify which question type leads to the most interesting insights. The two most common question types are open and closed. Each of these can be an essential or non-essential question. Some question types are easier to distinguish than others.

The first type you can identify is an open question. An open question hasno set answer. Think about the running shoe web site. Your data science team could ask an open question such as, "Who is our ideal customer?" An open question usually requires much more discussion.

These are the questions where you try to identify each other's reasoning. For example, someone on the team may say that the ideal customer is one who buys a lot of running shoes.

Another person on the team might question that reasoning by suggesting that the ideal customer is one who encourages other people to buy running shoes, or is a blogger, or a runner who started a running club.

An open question isn't usually answered. Instead, it's argued.

Whoever has the best reasoning usually settles the question. Your data science team will want to look for the strongest argument for who's an ideal customer, and then the data analyst will attempt to support this argument with the data.

A closed question is usually much more final.

A closed question might be something like, "What's the average age of our runner?"

These types of questions usually have some discussion. Your team might want to think about the advantages of the mean age versus the median age.

They also might want to question the value of the information. What other questions could you get from this question?

If you're the research lead, make sure that the team is not asking too many of any one type of question. Asking too many open questions will make everyone spend too much time questioning and not enough time sorting through the data.

Too many closed questions will result in the team spending too much time asking small, easier-to-prove questions without looking at the big picture.

Once you've identified whether your question is open or closed, you'll want to figure out whether your question is essential. An essential question is designed to provoke the team into deep discussion.

These are questions that are typically difficult to ask in most organizations. They can be simple questions like, "Why do people buy running shoes from us?" They can also be more complex, such as, "Why do people run?"

Essential questions are usually open and have to be argued. There shouldn't be one right answer.

You can also have a closed essential question. The team might ask something like, "Should we stop printing our catalog and only sell

shoes through our web site?” Closed essential questions are rare.

There are also many different types of nonessential questions. A nonessential question is not a bad thing. You probably have
to go through many nonessential questions before you start asking essential questions.

A good strategy is to ask many closed, nonessential questions as a way to build up ideas and ask larger essential questions.

Let’s say you want to ask why people run. Your science team might want to spend the first sprint knocking out nonessential questions.

LETS THINK OF SOME NONESSENTIAL QUESTIONS

Do our customers to running clubs?

Are most of our customers long-term runners or are they just starting out?

Are there other people in their household who run?

These questions might help you build a case for why your customers like running.

If your team has solid reasoning for why people like to run, it will help you market your product to meet those needs.

If you’re the research lead for the team, keep an eye on these different question types. They’ll help you guide the discussion and sort through your highest value questions.

If you know the different types, you’re more likely to find the gold that will lead to your best insights.