

MicroChat: Elements of critical thinking

Success - has it been defined and can it be measured?

(Kenneth Timmis)



Jess is the boy in the centre of the image whereas Kate is on the right
(created by Fran Jebok; <https://www.theabsurdmicrobe.com/recurring-characters/>)

Kate, dancing along the path, full of the joys of spring: Hello Farmer Giles! Are you looking forward to enjoying some nice Easter eggs at the weekend?

Farmer Giles: Hello Kate! Most certainly; I do love a chocolate egg at Easter. What about you?

Kate: Oh, I just love chocolate – it is my favourite food. Will you be organising an egg hunt this weekend? The one you did last Easter was wonderful.

Farmer Giles: Of course, but only if you and the others help decorate the eggs. My chickens are working really hard to produce the eggs and I am confident we will have enough.

Kate: Oh, yes: it is such fun decorating the egg hunt eggs. I'll tell the others. Shall we come round on Thursday afternoon?

Farmer Giles: yes, that would be just perfect! I'll boil the eggs in the morning, so that they have cooled down and are ready for you in the afternoon.

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Kate: Farmer Giles: have you heard of eating your way to happiness (<https://www.thetimes.com/travel/destinations/uk-travel/england/london-travel/eat-your-way-to-happiness-tdksdrrmft3>; <https://www.theatlantic.com/ideas/archive/2024/08/ultimate-happiness-diet/679520/>; <https://www.mountelizabeth.com.sg/health-plus/article/mood-boosting-foods>)? Apparently, if you want to be happy, you just have to eat the right food. It has something to do with the gut microbiome, which you have talked about before. The right food is what makes the gut microbiome happy. Chocolate certainly makes me very happy, so it must be making my gut microbiome happy. What do you think?

Farmer Giles: Well, this is quite something to unpack, so we better sit down on the bench over there, next to the hen house.

First of all, we need to make sure we are discussing the same things. Happiness is a state of mind that is experienced over a longer period of time, for some people more or less permanently. Of course, you may not be happy all the time, but you are basically happy most of the time. In contrast, when you are happy for a short period of time because you are doing something you like, but are unhappy the rest of the time, this is obviously different. This is the case of having pleasure doing what you like, such as eating chocolate, but this does not continue when the chocolate is finished. Pleasure can be momentary; happiness can be longer term.

Kate: Oh, yes, I know what you mean. There is a girl in our class who is very competitive. She is rather miserable much of the time, but when she gets top marks in a test, she is very happy. I suppose you would call this pleasure rather than happiness.

Farmer Giles: Exactly! I would say that you personally are a happy girl, because you almost always have a smile on your face (which, by the way, also makes other people feel happy). But to return to the idea of eating yourself happy. There is quite a lot of research going on into the issue of the gut microbiome, its impact on our moods, and the influence of diet on both the gut microbiome composition and activity, and our moods. However, the focus is on fibre, fresh fruit and vegetables, grains and nuts, and pulses, as “good” and junk food/processed food as “bad”.

Kate: But I read somewhere that chocolate is good for you and does make you happy!

Farmer Giles: Well, you should not believe everything you hear or read. But, okay: let us assume that it may be possible that chocolate can make you happy. How would you go about proving it?

Kate: Easy! I would eat chocolate every day for a week and see whether I was happier at the end.

Farmer Giles: Fine: that is good – you decide to do an experiment. I think you will become a scientist. However, how can you be sure that the result you obtain is valid for other people, because you did not test other people?

Kate: Also easy! I have the whole class eat chocolate every day and ask everyone if they are happier!

Farmer Giles: Ahh, very good. This in principle could provide some validity to your conclusions, although you need to think about splitting the class in two and creating a test group that eats the chocolate, and a control group that does not, and see if there is a real difference between the two.

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But I think your real problem is the issue of endpoints-measures of success.

Kate: Oh, goodness, what is that – it sounds scary!

Farmer Giles: Well, yes and no. The principle is easy to understand – defining what constitutes a measure of increased happiness. The practice may be less easy. In your case, it comes down to the issue of how you measure happiness, how you know for sure that people are more happy at the end of the experiment than they were at the beginning.

Kate, looking hesitant: Oh, I see what you mean. And what about if someone has a birthday or is given a puppy towards the end of the experiment – they may be happy because of this, not because of the chocolate.

Farmer Giles: Absolutely! Now you are thinking about variables, like a true scientist does. So you need to develop a checklist of variables that are relevant to the outcome, and have your classmates provide relevant information on these, so that you can take them into account when you analyse the results.

But we still have not dealt with the key issue of how to measure happiness and what outcome will allow you to conclude that someone is more happy at the end of the experiment.

Kate: Oh, Farmer Giles – I really do not know. How would you do it?

Farmer Giles: Ahh, Kate – you are so smart: when you do not know the answer to a question, you turn it around and ask the person who posed it! Ok, I am just a simple farmer and do not know. I can tell you when a chicken is happy because I can recognise the signs after twenty years raising chickens. But *measuring* the happiness of a chicken.....that is more difficult, and knowing whether it is more happy or less happy is impossible.

However, scientists probably know how to measure happiness, both in experimental animals, like mice, and in humans, and can probably define endpoints that identify a higher level of happiness. In this way, they can define what is a positive result – in this case increased happiness – and can relate it to other parameters like different diets and their influence on the gut microbiota. But, as you can see, it is a complicated issue and requires very careful experimental design and interpretation of results.

Kate, looking rather chastened: Oh, gosh, I never realised how complicated answering such a simple question could be. But it sounds super interesting....I think you are right – I will become a scientist!

Farmer Giles: Excellent! And keep in mind – when someone says let's do this or that because it will have a particular effect, always be a bit sceptical, like a scientist, and ask what are the measures of success, because if these are not specified from the outset, then people can always claim that whatever the result, it is a success.

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Kate, looking brighter: Oh, I like this – it is so simple and will make people think twice when they try to persuade others that they have a convenient answer to a problem. Thank you so much Farmer Giles! Measures of success will be my new mantra!