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The Socratic Dialogue as a tool for astrobiology communication

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Abstract

The Socratic Dialogue is a modern tool for analyzing and defining difficult concepts in groups. It is inspired by Socrates who involved people he met at the town square in advanced philosophical discussions. The method can be applied to all kinds of concepts by participants with a wide range of backgrounds. I will explain how to use it and share my experiences from using it for astrobiology education and outreach.

1. Introduction

Socrates was not just a pioneer in philosophy. He was also a pioneer in outreach through his method of involving his interlocutors in the philosophical process. The method is often referred to as the majeutic method because according to Socrates, he helped the person he talked with to "give birth" to their own ideas just like a midwife helps other women giving birth to their children [1].

When the term 'Socratic method' is mentioned in relation to teaching it often refers to the method of asking questions. This is, however, not what I will talk about here. Instead I will talk about a specific formalized method for definition or analysis of a concept by a group according to a set of strict rules. The Socratic Dialogue in its modern form was invented by the German philosopher Leonard Nelson (1882–1927). It is inspired by Socrates method but it also differs from the original in particular by being more formalized and usually performed in larger groups. My experiences of the method comes from frequent use for both outreach and education.

2. Using the Socratic Dialogue in astrobiology communication

'Life' is a key concept in astrobiology but there is no consensus about how to define it. It is also a concept that everyone has some relation to and some thoughts about. It is therefore perfect for this exercise. I will present both how I go about performing the dialogue and my experiences of using it.

3. The Dialogue

The version of the Socratic Dialogue I have found works best proceeds in five steps:

Step 1. Concrete examples. The participants start by providing examples of life.

Step 2. Choosing the best example for our purpose. The participants discuss the examples from step 1 and chose the example they think is the most fruitful for the continued discussion.

Step 3. Identifying why the chosen example is an example of life.

Step 4. Tentative definitions. Based on the previous discussions it is time to start suggesting tentative definitions.

Step 5. Iterative discussion. In this step, the participants discuss the pros and cons of the tentative definitions from step 4 one by one and suggest new definitions. This step continues until consensus is reached or the time is up.

4. Summary and Conclusions

Learning about a concept by taking part in the definition process is much more fulfilling than just having the definition explained by someone else. It is more inspiring and it also leaves a more deep and lasting effect on the participants' understanding of the concept.

This does, according to my experience, not just mean that the participants will remember the definition or definitions they have been part of producing in the Socratic Dialogue. They also, in my experience, gain an improved understanding of the definition that occur in the literature, and in particular an improved

understanding of why it is so difficult to reach a consensus about what life really is.

An additional advantage is that the participants tend to get a considerable confidence boost. The key to this is the structure of the dialogue that starts with the specific and concrete and familiar and successively leads the participants into the abstract, general and atypical. As a result, the participants tend to be honestly (and rightfully) impressed by their own achievements.

Not least important is that the participants feel inspired to continue to think and talk about what is and is not alive, what the borders of life are, how to recognize it and other questions central to astrobiology. I have seen and heard the discussion continue long after the exercise has finished, for example the bus stop while some participants wait for the bus home and on online forums.

One drawback with the Socratic Dialogue is that the method is relatively time consuming. I have found, however, that it is possible to have a constructive dialogue over two hours. If it is possible to dedicate more than two hours it is even better. Less than two hours is not constructive.

The group size is also important. It is not meaningful to perform a Socratic Dialogue in very large groups. Ideally, the number of students should be around ten but between five and twenty works OK.

The primary benefits of the method can be summed up in the word 'transparency'. The method itself is transparent. It is easy for the participants to follow the process and to appreciate their own progress. The Socratic Dialogue also helps to make concepts transparent. Concepts that to begin with appear as either murky and impenetrable or intuitively basic and therefore un-analyzable, can in a few simple steps be objects of a discussion on a high level of sophistication and become an integrated part of the participants' understanding of the discipline(s) where the discussed concept play a key role. 'Life' is a key concept in astrobiology but also in disciplines as diverse as biology, geoscience, philosophy, theology and literature. The Socratic Dialogue cannot only be applied to the concept of 'life', however. All concepts that to be defined or analyzed, are suitable for this kind of exercise. It also seems to work for a wide range of audiences. I have organized Socratic Dialogues for business executives on "business ethics", for research groups on "risk", for civil servants on "responsibility", among others. I also regularly use the Socratic Dialogue in my teaching.

Acknowledgements

References

[1] Plato: Theaetetus, Clarendon press, 1987