Transcript: Philosophy VIDEO 1.6 – Paradox of Design? Must We Think In Questions?

Remember what Collingwood said:

> Every statement that anybody ever makes is made in answer to a question ... I do not mean only statements made out loud to somebody else; I include statements made by somebody to himself in the course of solitary thinking ... In our least scientific moments we hardly know that the thoughts we fish up out of our minds are answers to questions at all, let alone what questions these are.

What is he saying? In terms of my three senses of question, I think he's saying something like that. Questioning in sense 1—problem-solving: figuring stuff out—must proceed by means of Question sense 2—interrogative Q&A. I'm not so sure about sense 3—self-criticism, knowing what you don't know.

To take a verbal questioning activity that usually happens between people—eliciting information by questions—and move it inside your head, it seems like you need two you's: one to ask and one to answer. That sounds pretty Socratic.

But does this have to be how it goes?

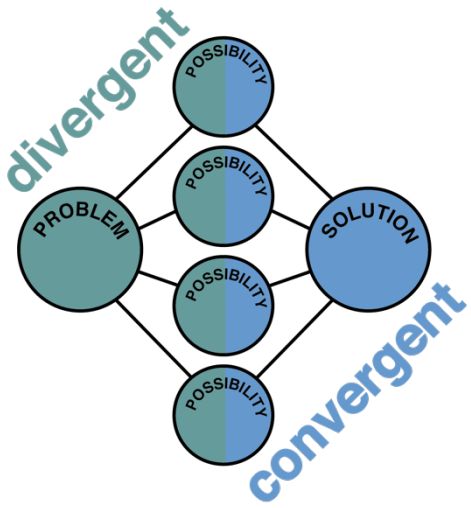
Collingwood was a philosophy professor, just like me. Maybe we should look at human problem-solving situations that aren't so much word-problem situations, as philosophy problems tend to be.

[What sorts of problems aren't word problems?]

How about design? Engineering? Let's start with design. But keeping an eye on engineering.

Our second to last segment for the semester will be about design. You are going to hear about various design strategies for problem-solving.

For example, you will hear about divergent and convergent thinking. Roughly, that means your thoughts spread out in a fan of possible moves, then you narrow that back down to a chosen path. I'm not going to go into that. I'll leave that to my colleague.



But, when you get there ask yourself: is opening your mind, like a fan, then closing it again, a case of what Collingwood is saying. Or is it maybe a counter-example to it?

Let me quote from a book entitled *How Designers Think: The Design Process Demystified*, by Bryan Lawson. It's a pretty popular textbook. I'm quoting the most recent, 4th edition.

A bit of framing. The author, Lawson, is concerned to isolate what he thinks is a distinctive type of thinking designers engage in—only designers, or at least especially designers. Not physicists, or philosophers or poets or engineers or fine artists. Lawson is determined to articulate what is special about professional design, as a discipline.

Q: Why does it make sense to have a design department, over and above the physics, engineering, philosophy, etc. departments?

A: Because design-thinking is its own thing, and it's not those other things.

This answer leads pretty early on to a fairly predictable problem. A lot of the so-called design-thinking the author discusses has obvious cognitive analogies to other fields, even to non-technical, ordinary life stuff. The author sees this. He's not a dummy. But he plays it down. Let's read.

> Already here we have begun to concentrate on professional designers such as architects, fashion designers and engineers. But there is a paradox here about design. Design is now clearly a highly professional activity for some people, and the very best designers are greatly valued and we admire what they do enormously. And yet design is also an everyday activity that we all do.We design our own rooms, we decide how to arrange things on shelves or in storage systems, we design our own appearance every morning, we plant,

> cultivate and maintain our gardens, we select food and prepare our meals, we plan our holidays. All these everyday domestic jobs can be seen as design tasks or at least design-like tasks. When we are at work we are still designing by planning our time, arranging the desktops of our computers, arranging rooms for meetings, and so we could go on. We may not aggrandise these humble tasks with the word 'design', but they share many of the characteristics of professional design tasks.

I'll just say it. I was with him until the end. Then I get off the bus.

I don't see anything wrong with using 'design' for all that humble stuff. It doesn't look to me different in kind from what Lawson is talking in his book. You haven't read his book, of course.

But let me quote an engineer, Henry Petroski, backing me up on this general proposition. This is a quote from Petroski's book, *Success Through Failure: The Paradox of Design*

> Like the stick pointer, virtually all of the earliest things used in prehistoric times can be assumed to have been found in nature: caves in which to seek shelter, rocks with which to hunt (and fight), fallen branches to reach fruit high on trees, sticks to poke into beehives and insect holes, shells to scoop up water from a lake, fallen logs and stepping-stones to cross a stream. Though such found things may have needed no essential crafting, their mere selection for a purpose made them designed. Everything we have used since has also been designed, in the sense that it has been acquired, adapted, altered, arranged, or assembled deliberately to accomplish a specific objective. Designed things are the means by which we achieve desired ends. If the ends have not always justified the means, they have at least inspired them. But how do things evolve from sticks and stones to bricks and mortar? From shells to spoons? From logs to bridges? From caves to castles? Whenever we use something to do something we expect it to do, we test it. Such testing is not necessarily conscious, but it is always effective and consequential. Indeed, with the testing of each individual example of a thing we also test the general hypothesis on which our expectation is based, whether consciously or not.

So, according to Petroski, design is everywhere. And note that Petroski did not use the word question or the word answer in explaining how design works, and he didn't seem to miss them especially.
Wouldn't it be ironic if it turned out design-thinking was the real cognitive universal? So Lawson is exactly wrong to say it belongs, distinctively, in university design departments. No. It's everywhere. Birds do it. Bees do it. Even the fishes in the seas do it. Well, squid do it. Seriously. It's creepy.

Conversely, wouldn't it be ironic if Collingwood turned out to be exactly wrong to say that all thinking happens in Q&A form?

What if that turns out to be more a localized cognitive phenomenon—something that happens all the time in the philosophy department, because they are always reading about Socrates! But it's possible to think without asking questions verbally.

More precisely, it's possible to think in Question 1 form—problem-solving; without thinking in Question 2 form—interrogative communication; or Question 3 form—consciously knowing what you don't know.

Let me sign off with a final thought about that last one. The connection between problem-solving and consciousness, or critical self-consciousness.

At one point, Lawson includes a quote from Karl Marx—yes, the communism guy. But this one is about bees.

> A bee puts to shame many an architect in the construction of her cells but what distinguishes the worst of architects from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality. At the end of every labour process we get a result that already existed in the imagination of the labourer at its beginning.

Very philosophical. Marx obviously sees special value in this process of inner imagination even though—as he admits—sometimes the bees beat the pre-planners hands-down.

Marx seems to want to emphasize the discontinuity between human design and invention and bee design. Bees aren't really inventors—problem-solvers—not like humans.

But do you buy it?

Let's ask Francis Bacon what he thinks. Let me quote him asking a bunch of questions:

> Who taught the raven in a drought to throw pebbles into a hollow tree, where she spied water, that the water might rise so as she might come to it? Who taught the bee to sail through such a vast sea or air, and to find the way from a field in a flower a great way off to her hive? Who taught the ant to bite every grain of corn that she burieth in her hill, lest it should take root and grow?

I don't know about the ant, but that thing with about the ravens? It's totally true, and even though Francis Bacon wrote this in 1605, and even though he

got the story from Aesop's fable of "The Crow and the Pitcher", which might be even older than Plato. Biologists only confirmed this cool bird fact in 2009.

"Rooks Use Stones To Raise The Water Level To Reach A Floating Worm," by Christopher Bird and Nathan Emery, *Current Biology* (2009)

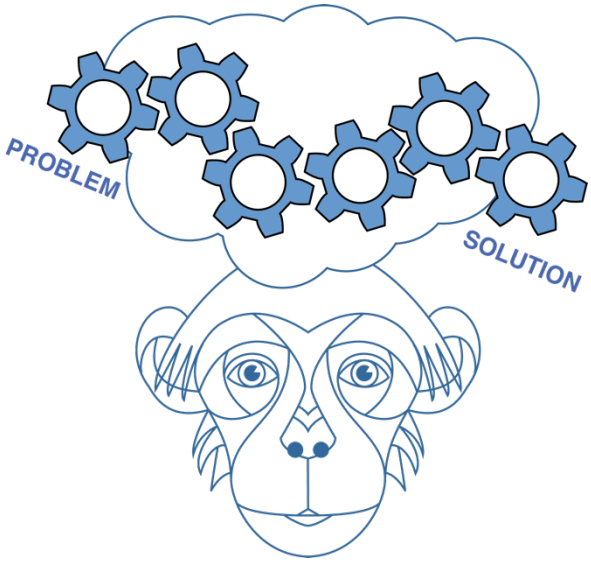
You can read all about it in a paper entitled "Rooks Use Stones To Raise The Water Level To Reach A Floating Worm," by Christopher Bird and Nathan Emery, published in *Current Biology*. But I digress.

I'm not going to quote Bacon's answer to his own questions, because it goes so tangled up in Latin bits that you wouldn't get it. But basically he says that invention is not a function of pre-imagining, as Marx supposes. For non-human animals—and, by extension, for humans—its substantially a function of doing the same darn thing over and over again. Getting better and better at it. Invention is instinctive sounds like a contradiction in terms. Invention is by definition new and different, hence not instinctive!

But maybe that's not right. Or maybe it's not so simple. Another passage, this time from the primatologist and ethologist Frans de Waal. It's from his popular book, *Are We Smart Enough To Know How Smart Animals Are?* (Good title.) Here he is talking about non-human primate tool use.

> The tool use of capuchins and chimpanzees may not be cognitively at the same level. Over many years of working with both species, I have formed a distinct impression of how they go about their business, which I'll offer here in everyday language. Chimpanzees, like all the apes, think before they act. The most deliberate ape is perhaps the orangutan, but chimps and bonobos, despite their emotional excitability, also judge a situation before tackling it, weighing the effect of their actions. They often find solutions in their heads rather than having to try things out. Sometimes we see a combination of both, as when they start acting on a plan before it is completely formed, which is of course not unusual in our species either. In contrast, the capuchin monkey is a frenzied trial-and-error machine. These monkeys are hyperactive, hypermanipulative, and afraid of nothing. They try out a great variety of manipulations and possibilities, and once they discover something that works, they instantly learn from it. They don't mind making tons of mistakes and rarely give up. There is not much pondering and thinking behind their behavior: they are overwhelmingly action-driven. Even if these monkeys often end up with the same solutions as the apes, they seem to get there in an entirely different way.

In short, capuchin monkeys are are a bunch of button-mashers. Chimps and other apes—ah, clearly they are asking questions, inwardly, and answering, like Collingwood says!



And they act only when they've heard that inner answer! As Marx says, the imagine it all inwardly. So the contemplative ape operates on a high cognitive plane than those manic capuchins.

That's not what De Waal said, exactly, but I think it's what we are tempted to think, seeing a monkey freak out and an ape contemplatively tug its beard.

But what if all that inwardness is … just another case of button-mashing? Maybe the chimps do, inwardly, what the capuchin's do outwardly. A lot of frenzied trial-and-error. Only it doesn't show on the surface.

When the time comes for you to watch the design videos, and hear about divergent and convergent design, think to yourself: could both capuchins and chimps be engaging in divergent and convergent design. Could neither of them be doing anything like Questioning in number 2 sense, even though Collingwood said that was obviously impossible.

And what about people? I don't know. I see a bunch of button-mashers around the place. Maybe that's ok. But it probably has its limits. Well, that's enough for one video.