

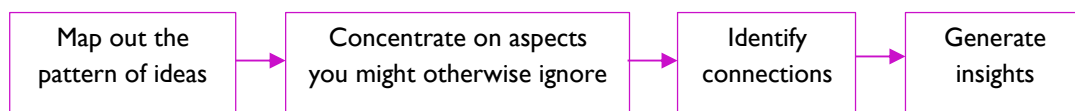
Exercises: Chapter 12

As we saw in Chapter 12 the answers to many problems lie in bringing together and synthesising different patterns of ideas, which may seem to have very little in common. In Chapter 12 we learned a simple five stage method for doing this. The following exercises are designed to give you an opportunity to develop the skills you need for the first two stages. You are given two different patterns of ideas. Your job is to make connections between them from which you can derive an insight that might lead to a solution of the problem.

Map out the two structures of ideas clearly and then start comparing them as we did in Chapter 12, searching for:

- 1 Causes
- 2 Contrasts
- 3 Seeing parts of the whole
- 4 Seeing the whole from the parts
- 5 Seeing extensions of ideas, like logical inferences
- 6 Divergences
- 7 Convergences.

As well as asking naïve questions, concentrate on another part of the pattern of ideas that you don't normally consider. When we analysed concepts, I said that the solution to many problems comes from concentrating on different aspects of the pattern of ideas that the concept represents, which you might otherwise ignore. In this way, by seeing alternative interpretations of the concept you can make new connections with other ideas. Do the same here.



Exercise 1

I suspect this problem is too difficult to ask you to solve, simply because I can't present you with all the information you would need. But try it anyway. Even if you don't arrive at a practical solution, see if you can generate the insight that will lead to a solution. See how close you can get and then compare your ideas with the solution below.

- 1 In many Asian and African countries there is a growing problem with waste management. The way in which it has been managed has posed a threat not just to the environment, but also to public health. And the problem is only likely to get worse with the volume of waste in some of the poorest, rapidly growing African and Asian cities predicted to double by 2030.
- 2 The other problem is that these are low-income countries with women, in particular, struggling to earn enough money for their families. Traditionally, it has been boys, rather

than girls, who have received an education. So, most women struggle to find work that will allow them to earn enough to feed their families.

Try to create connections between these two sets of ideas, from which you can generate insights that might lead to a solution.

Answer:

Insight

The key insight here comes from making the connection between the waste and ways in which women might earn an income. Once you have made this connection, it is not difficult to generate the important insight: think about waste, not as a problem, but as an important resource that women might be able to use to generate an income. If this were possible, women would have a means of generating income, while the waste would be reprocessed without posing a threat to the health of the local community or to the environment.

Solution

Teach women the simple skills necessary to make organic fuel briquettes from the waste, which can be used as an alternative to traditional charcoal. In the Gambia a recycling training centre has been set up with the aim of achieving just this. For example, at a local market a bag of charcoal costs about 250 dalasi. The project hopes to sell its sacks of organic fuel briquettes for 180 dalasi.

Obviously this is good for the women and their families. It is thought that the briquettes sold in the local market could bring in an income of between 800 and 1,000 dalasi a day, compared with the median income for a low-skilled worker in the Gambia of 1,500 dalasi a month. But it is also good for customers buying the cheaper briquettes and for the environment in that it would lower the demand for traditional charcoal, which might in turn reduce the number of trees being felled.

In addition to the organic fuel briquettes, the women learn how to turn plastic bags into paving slabs and fish and food waste into fertiliser. After the training in the skills necessary for reprocessing the waste, the women are given a week's training to help them form their own businesses or social enterprises.

Exercise 2

In this exercise you should be able not only to generate insights, but then extend them into practical solutions. Try it and compare your solution, however naïve that may sound, with the solution below.

- I The International Maritime Organization estimates that for the period 2007-12 on average shipping accounted for approximately 3.1 per cent of annual global CO₂ emissions and predicted this will increase by at least 50-250 per cent in the period up to 2050. It is estimated that 90 per cent of global trade travels by sea and there are around 100,000 cargo ships and about 1 million fishing boats. With the growing wealth of the developing world and the subsequent increase in demand for goods, it is estimated that international trade and shipping will treble by 2030 outstripping by a considerable margin the increase in the World economy GDP.

- 2 Up until around 1870 almost all of the World's maritime fleet was under sail. In terms of international transportation, the beginning of the 19th century saw the establishment of the first regular maritime routes linking harbours worldwide, especially over the North Atlantic between Europe and North America. Many of these long distance routes were navigated by fast clipper ships, which dominated ocean trade until the late 1850s. These were the stars of the day, admired for their beauty and speed. They sailed all over the world, but primarily on the trade routes between Britain and the colonies, the transatlantic route and the New York to San Francisco route around Cape Horn during the California gold rush. The commercial demise of the sailing ships took place as [trade shifted to the steamship](#). While sailing ships accounted for 85 per cent of the total maritime tonnage in 1870, this share had plummeted to 14 per cent by 1910.

Answer:

Insight

Comparing these two sets of notes on different types of shipping, one contributing significantly to climate change, the other free of all carbon emissions, encourages you to ask a simple and very naïve question: why not use sails on modern ships? By doing this we would be using wind power in the same way that we are innovating with renewable energy, like wind and solar power, to create alternative sources to fossil fuels. Like many of Einstein's naïve questions, this sounds childlike and absurd, but then, as A.N. Whitehead said, all really creative ideas that transform the way we think start out sounding more than a little absurd.

Solution

Yves Parlier, a French yachtsman, was not deterred by the absurdity of such an idea. In 2014, he launched a project to develop ways of using very large kites for marine propulsion. The kite is fitted with position and motion sensors and can be adjusted using hydraulic hoists controlled by a computer, so it is much more efficient in catching and making the most of wind power than the clippers of the nineteenth century. According to Parlier widespread use of these could cut fuel consumption on maritime ships by 20 per cent, with a corresponding cut in greenhouse gas emissions.

In the following exercises the solutions are not given. The challenge is to see if you can design one yourself.

Exercise 3

- 1 There can be very few students who are unaware of the plight faced by most young people. At the end of 2015 the Equality and Human Rights Commission drew attention to the unprecedented slump in the living standards of young people. The trebling of tuition fees will leave many with huge debts that will sap their living standards for years to come. Home ownership is an impossibility for many, forcing them to rent in the insecure and hugely

expensive private rental sector. Hundreds of thousands of young people are either out of work or in precarious, low-skilled jobs.

- 2 But, while young people are aware of the problem, all too often they appear to lack any hope that they can do anything about it. Some have simply lost all faith in traditional politics and in the willingness of political parties to do anything about it, while others simply accept all these problems as just life, about which you can do very little. Consequently, voter registration among young people is low. And there appears to be no movement that embraces all young people, giving a voice to all their insecurities and ambitions.

So, what is the solution? Map out the two structures of ideas that represent both of these problems and then start comparing them in search of connections that will synthesise the ideas into a possible solution.

Exercise 4

- 1 During the period 1880-1914 creative expression changed radically as artists rejected conventional art and morality. Writers began writing novels that no longer contained the traditional character etched in detail, whose values and beliefs the reader could relate to and whose responses to circumstances was rational and understandable. In their place appeared novels that were more like subjective, emotional autobiographies with all their confessions of uncertainty and irrationality. Rather than understand characters on a rational level, some, like Dostoevsky's *Notes from Underground*, set out to be frank confessions of irrationality. And, as plots are a function of the development of characters, they too disappeared. Novels became just chunks of time with no particular rational beginning or end.

But it wasn't just novels that appeared to throw off conventional forms. In music Stravinsky's *Rite of Spring* caused a near-riot at its first performance in Paris in 1913, because it rejected orthodox forms of expression. Similarly, expressionist painters threw off the demands of realism and, instead, used as their subject their own emotional responses. Futurists confessed to a love of the irrational, of violence, war and all those things that struck against conventional, rational order. Its leader Filippo Marinetti declared war on all orthodox art and taste. The past is dead, he said, instead art should seize the future: machines, speed, dynamism and noise. In his manifesto of 1908-9 he declared 'We sing of war, the only cure for the world.'

- 2 Now compare that set of ideas with this and see if you can find connections. In the late nineteenth century, during the years 1874-96, there occurred what is described as the Great Depression. The cause of this seems to have been a general deflation, triggered by lower agricultural prices and the drying up of the supply of gold after the California gold rush in the 1840s. With more countries adopting the gold standard the deflationary pressure of this was felt in most countries. As prices fell so too did profits, so employers began to put pressure on wages to maintain their profit margins and unemployment rose.

The effect of this was to bring about the realisation that the optimism invested in the capitalist system and its capacity to bring higher standards of living to all may not have been well-founded. Throughout the nineteenth century growing prosperity appeared to filtering down to all classes, increasing the optimism in the liberal values of the free market, limited government and competition. But now it began to be realised that the capitalist system does go through crises, throwing people out of work through no fault of their own. Up until then liberal ideas endorsed the belief that if someone was unemployed it was their own fault: their laziness and reluctance to find a job.

In Britain the psychological impact of this was significant. Surveys conducted by Seebohm Rowntree in York and Charles Booth in London revealed to the horror of many that at the heart of the British Empire, the envy of the world, there was growing poverty. In London, Booth reported that 35 per cent of the population were living in abject poverty. The confident optimism in nineteenth century liberal values was shaken. Both reports influenced many people to change their ideas about why people were poor and what should be done to help them.

Once you've mapped out the two structures represented by these very different sets of ideas, compare them in search of connections that you can synthesise into hypotheses that will make very interesting research projects in the same way we did in Chapter 4.

Exercise 5

Exercise 4

- 1 We all know how important are the rainforests in countries like Brazil, Central Africa and Papua New Guinea to reducing the impact of climate change. They take carbon dioxide out of the atmosphere and store it. It is thought that each year the 3 trillion trees on the Earth absorb up to 1.6 gigatonnes of the 10 gigatonnes of manmade emissions. However, those who live in the forests struggle to survive on very little, so the temptation to cut down trees, drain swamps and burn brush to make way for agriculture in order to grow agricultural produce for an affluent western market is very tempting. In fact it is thought that making way for agriculture in this way produces anything between 10 and 20 per cent of greenhouse gas emissions in their own right.

So, the problem is how can we encourage the very poor villagers in these areas not to do this? One answer might be to pay them not to. In this way they would be able to receive an income that will help them improve their communities, provide education for their children and at last begin to enjoy an income that lifts them out of poverty, while the rest of the world benefits from being able to exercise a better control over climate change. But it seems perverse to pay someone not to do something – to do nothing. You naturally wonder whether there might not be a more creative solution that allows them to generate income and wealth, and improve their lives, through their own skills and labour.

- 2 Now bring in the other side of the equation. Here the population of the richer polluting nations is increasing at an alarming rate, far outstripping the capacity of the ecosystem to

support it. Moreover, these same forests, that are at present being chopped down, supply water to a third of the world's large cities as well as sheltering 77 per cent of the world's threatened bird species and are home to 60 million indigenous people, who are some of the most vulnerable on the planet.

The problem you need to address, therefore, is one of incentives and disincentives: how to create effective incentives to encourage those who live in the forests to protect and develop the forests' capacity to absorb and store carbon, while creating effective disincentives that will reduce the pollution of richer nations. A simple carbon offset scheme doesn't seem to be enough. Essentially this would mean that rich countries can continue to pollute as long as they pay poor people not to cut down their trees. An effective, enduring solution entails, it seems, changes in behaviour on both sides. If you get it right an awful lot of people stand to benefit: you will preserve a vital means of storing carbon, while you secure the livelihoods of people with constructive, purposeful activities that will allow them to achieve untold benefits for themselves and their families, along with their communities.