



RISK COMMUNICATIONS

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THE
COGNITION
COMPANY

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FOREWORD

Every day we're bombarded with demands for our attention – with the sheer volume of information often overwhelming us. How then do communicators make sure what they say and do gets noticed, and acted upon – especially when the stakes are high?

The answer lies in part by drawing on the behavioral sciences – and how we can work with the grain of how people weigh up evidence and make decisions. Over the past decade, these ideas have started to influence walks of life from No. 10 Downing Street and the White House to large banks and major retailers.

At Finsbury Glover Hering in partnership with The Cognition Company – set up by a founder of the UK Government's 'Nudge Unit' – we've now applied this to risk communications; a pressing need as societies grapple with thorny questions around science and technology in the wake of COVID-19.

Our studies with consumers in the U.S. and UK underscore how awareness-raising alone does not change opinion. As communicators, we can sometimes lull ourselves into thinking that if only we got the "facts" across, people would come around to our point of view. But this runs counter to how people make choices in the real world.

Whether we were seeking support for a transaction, spearheading a change and transformation program, or managing a crisis, the scenarios we explored in our research pointed to more effective ways to communicate:

- What points of view people are willing to accept, or likely to reject, is determined by the beliefs and emotions they bring to the table. Without insight into audiences' starting point, communications effort will at best be wasted, and at worst will backfire.
- Time and energy in communications is often spent wordsmithing what an organization says, but the messenger plays an outsized role in determining whether that message is believed – and requires as much consideration as the arguments we want to get across.
- What we believe and do is heavily influenced by those around us, and what we feel others expect of us – decision-making is social, not individual. The onus is on us as communicators to make it socially rewarding to back a position or cause, not just lob information at the audience.

No matter the communications challenge you're facing, we hope the report sheds light on how to get noticed in a distracted world.

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EXECUTIVE SUMMARY

All of us are confronted by risks every day. We could be hit by a car when crossing a road. We might take a pill which has potential side-effects. Or we could be weighing up a business decision that looks sensible but might turn sour at some distant point.

In each of these scenarios, we often have lots of information – some informal, some more formal – to support the decision we make. And we might assume that all of us are capable of considering the pros and cons of information we are given, and then deciding which course of action seems best under the circumstances.

But decades of behavioral science research has shown us that there are many factors that influence our decisions that go well beyond an individual's ability to weigh up objectively the costs and benefits of a decision. And that very often small changes in the way that a risk is communicated to us can have a dramatic impact upon whether we understand the nature of that risk, and whether we are likely or not to take action.

This has always been important. But it has never been more important than during a global pandemic in which all of us are being presented with daily updates about Covid cases; encouraged to wear face masks; and urged to get vaccinated as soon as we are offered an appointment.

This paper seeks to explain many of the key findings from the behavioral science literature relating to the communication of risks. It also shows the impact of these findings through a series of new studies, involving representative samples of 2,000 people in both the UK and the US (over 4,000 combined).

Some of these studies are directly relevant to the Covid pandemic, and how we process information.

In Box 2.1, for example, we show that if you give new information about a vaccine to people with strong existing beliefs (whether pro or anti) it will likely be misinterpreted when this new information conflicts with an individual's existing beliefs. Those opposed to vaccines will systematically misinterpret information that shows the effectiveness of a vaccine. And those in favour of vaccines will struggle to compute information which suggests the opposite. The stronger the existing beliefs, the stronger the effect. This is called 'confirmation bias', knowledge of which is critical if we are to use communications effectively to encourage people to take action.

Some of the new studies are more focused on business decisions.

In Box 1.1, we recreate a famous behavioral science experiment, but give it a hard business edge. Participants are told they are being taken to court and will lose \$1M. But they could settle for a \$650,000 cost (saving them \$350,000), or alternatively take a 35% chance they'll lose nothing against a 65% chance they'll be hit with the full \$1M. When the first option of settling is framed as a 'saving' of \$350,000 (the so-called 'gain frame') 82% of people choose it above the riskier bet. But when it is labelled as a 'cost' of \$650,000 (the 'loss frame') it drops to 53%. The payoffs are the same, but the choices change dramatically with the more negative framing. Most communicators are aware of these 'framing' effects, but not necessarily about exactly how powerful they can be in different contexts.

Some of the studies reveal new and better ways of communicating risks.

In Box 1.2, we show how difficult it is for people to understand risks when they are presented as relative changes ('a 20% increase in the risk of cancer'), rather than absolute risks ('an increase from 6 to 7%'). We show that only 3% of people could answer a question about the risks faced in a scenario regarding the link between eating processed meat and cancer, when the information is presented as a relative change. But when presented using 'natural frequencies', which show what typically happens to 100 people, 62% get it right. This is important, because risks are often presented in terms of the more dramatic-sounding change, rather than in a form that makes it much easier for most people to understand.

These new insights, and many more, are built into this paper, which is structured around four chapters. Each of these chapters explains a number of key behavioral science concepts, and then sets out a range of ways in which they can be used by anyone seeking to communicate a risk more effectively.

The first chapter focuses on some of the traps we often fall into when communicating risk, which we then illustrate with some of the new studies already referred to. This includes the framing of a risk (negative versus positive); the all-too-common mistake of not being clear about what exactly the risk is pertaining to (what does a 70% chance of rain actually mean?); and the differences between a relative change in risk versus the absolute risk that we face. We show how common some of these challenges are, and then outline lessons that communicators of risk can draw on to enable all of us to make better, more informed decisions – in particular through the use of 'natural frequencies'.

Chapter two explores the importance of our emotions and pre-existing beliefs on our ability to weigh up information that is being conveyed to us. We show, for example, that we tend to overreact to salient risks we can readily bring to mind (terrorist attacks and plane crashes) and underplay more 'every day' risks that are more likely to affect us (road traffic accidents and heart conditions). And we are often numb to the multiplication of risks, which means that we react in a similar way to outcomes that are an order of magnitude worse (for example, most people react with the same concern to an ecological disaster resulting in 2,000 birds dying to one in which 20,000 or even 200,000 birds die). And we show how and why our prior beliefs guide how we interpret new information ('confirmation bias').

Chapter three brings in the social side of risk communication. We are swayed heavily not just by the information that is being conveyed to us, but by who is conveying that information to us. We show how important it is that the message you are conveying is delivered by a trusted messenger (particularly in those instances explored in the previous chapter where an individual has a set of prior beliefs). In study 3.1 we demonstrate how individuals respond differently to information about the risks associated with the use of plastics when this information is conveyed by a physician or a politician. Just as important are the 'peer effects' of our friends, colleagues and neighbours.

And finally, Chapter four shows how to link these communication efforts to action. A central lesson here is for communicators to be involved not just in the delivery of the 'message', but in the planning that goes into how people might respond to these risks. And to focus these efforts on making it easier for people to take action. We show, for example, that actions as simple as giving people pre-designated time slots and maps for vaccination centres significantly increases uptake of the flu vaccine, with obvious lessons for countries around the world right now.

What these studies and insights show us is the importance of gaining a deeper understanding of the behavioral factors that guide our decision making when thinking about how we communicate risk. As a result, we hope this paper is not only useful for professional communicators. But for anyone seeking to help guide the decision-making of their friends, family, colleagues or citizens.



1. CONVEYING RISKS INTUITIVELY: OVERCOMING THREE CHALLENGES

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One of the first challenges in communicating risks is being able to convey the risk in a way that people can intuitively understand. In this chapter, we explain three of the most common challenges of communicating risks effectively – how we frame the risk, making sure it’s clear what the risk really refers to, and understanding the difference between a relative change and the absolute risk we face. We then explain how all three of these challenges can be overcome by conveying these risks differently, using methods that most of us will find much more intuitive.

The effect of positive or negative frames

Imagine that you are a senior executive working for a company that faces the prospect of being taken to court over a copyright disagreement. You are provided with some advice from your financial and legal departments, which suggest that, if you take no action, you will lose the case and have to pay costs of £1 million.

However, you are also told that there are two alternative courses of action you can take (Option A and B). If you decide to go for Option A, you can settle out of court and save the company £350,000 of the £1 million. Alternatively, you can go for Option B, in which there is a 35% chance that the company will save the full £1 million, but there’s also a 65% that no money will be saved.

Which do you go for? If you are like most people, you would have chosen Option A, helping to save the company hundreds of thousands of pounds in the process. But how do you imagine people might have responded if the question had been posed differently?

Imagine that as the senior executive you now have to choose between a new Option A and B. Option A will result in the certain loss of £650,000. Whereas Option B has a 35% chance that no money will be lost, and a 65% chance that you will lose the full £1 million? In this instance, most people will likely choose Option B.

The point, of course, is that the first Options A (saving £350,000 of the £1 million) and the second Option A (losing £650,000 of the £1 million) are identical in terms of their outcomes. It’s just that the language, or framing, is very different. The first Option A focuses on the savings you make relative to the £1 million; whereas the second focuses on the losses. And it is the positive or negative frame that drives our instinctive responses; not the objectively identical information underlying them.

We ran a study with 4,000 participants in the UK and US to test exactly how strong this effect is on the choices that people make, and found strikingly similar results in both countries (see Box 1.1 below). A positive frame is chosen 82% of the time. Whereas when expressed negatively, it is only chosen 53% of the time.

This finding is in line with the classic studies of Daniel Kahneman and Amos Tversky,¹ conducted in the early 1980s, who argued that when thinking about gains, people tend to avoid taking risks. As the proverb goes, a bird in the hand is worth two in the bush. But on the other hand, people tend to exhibit risk-seeking behavior when faced with potential losses. This is why betting on longshots typically increases towards the end of a day at the races – punters are willing to risk more to chase the losses they have accumulated during the day.

Box 1.1: Framing Effects: Legal Challenge

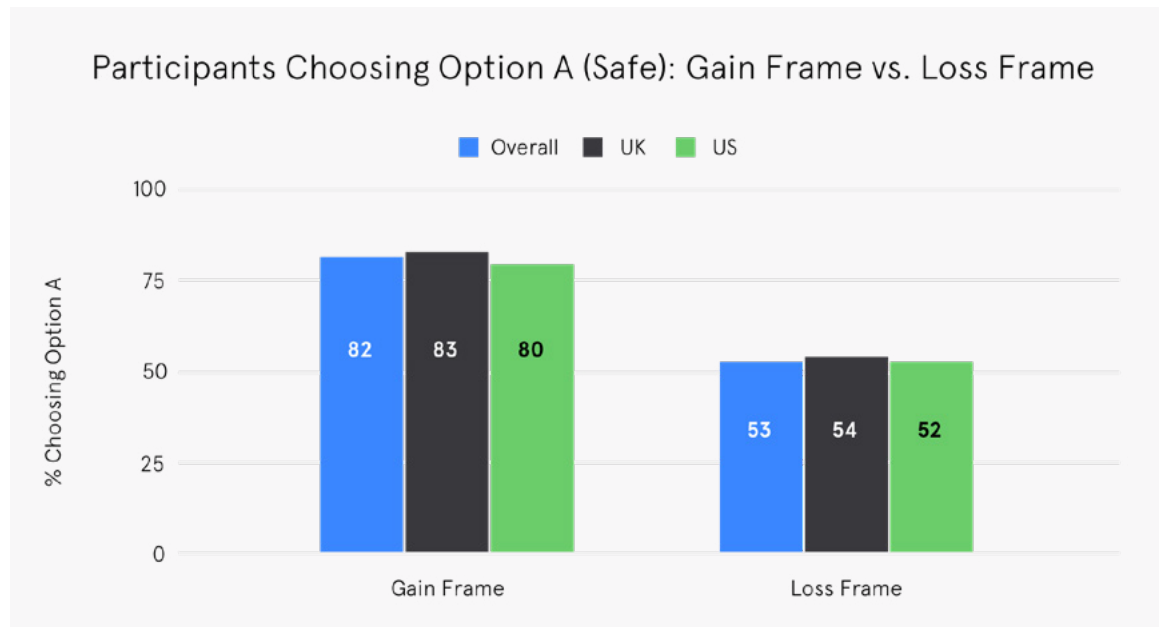
We recruited a representative sample of 2,000 participants in both the UK and U.S. to take part in a study to test to the effect of positive and negative frames upon business decisions. Participants were asked to imagine that they work for a company that faces the prospect of being taken to court over a copyright disagreement, which is expected to cost £1 million.

The participants were then randomly assigned to one of two conditions, who were then shown different options depending on which condition they were with. In the Gain Frame condition, the participants are told that they seek legal advice, and are told that there are two alternative options:

- | **Option A:** The company will save £350,000
- | **Option B:** There is a 35% chance that the company will save £1 million, and a 65% chance that it will lose £1 million.

In the Loss Frame condition, the participants are told that they seek legal advice, and that there are two alternative options:

- | **Option A:** The company will lose £650,000
- | **Option B:** There is a 35% chance that the company will lose nothing, and a 65% chance that it will lose £1 million.



We found that in the gain frame, 82% of participants chose the safe option (A). But in the loss frame, just 53% of participants did so. This difference was statistically significant ($p < .0001$).

1. Tversky, A. & Kahneman, D. (1981): 'The Framing of Decisions and the Psychology of Choice'

This might feel like an example that is far removed (thankfully) from the real world choices that most of us face. But the reality is that we face ‘framing effects’ of a similar kind every day. And whether a risk is framed negatively (5% of people will die; there is a 10% chance you have cancer; this yoghurt contains 5% fat) or positively (95% of people will be saved; there is a 90% chance you do not have cancer; this yoghurt is 95% fat-free) affects our decisions in all kinds of domains.

This feels like a very challenging problem for consumers or citizens to overcome. But as we shall see, it turns out that we can convey all of this information in ways that significantly reduce the problems of this and other framing effects.

The challenge of reference class: being clear about what the risk relates to

Imagine that you are watching the weather forecast on television or looking at an app on your phone that tells you that at 11AM there’s a 25% chance of rain tomorrow in the place you live. The same is true at 12PM and 1PM: 25% chance of rain, and so on for the rest of the day.

You have an outdoor party that you’re organising which kicks off at 1PM. And at first you think that this forecast is pretty straightforward. Until you start to interrogate what it actually means in practice. And it turns out that there is a huge amount of potential, even in this simple example, for misinterpretation. Here are a few examples:²

- | There’s potential ambiguity in the time. Does this refer to the moment the clock hits the hour, or to the hour-long period from the stated time (in other words 11am means 11am to 12pm). Or could it in fact be referring to the hour up to the stated time³ (in other words, if it says 11am, it means 10 to 11am, not 11am–12pm).
- | There’s potential ambiguity in the location. Might one interpretation not be that it rains across 25% of the region or city that is being referred to (while the remaining 75% stays dry)?
- | There’s potential ambiguity in the probability being conveyed. Perhaps the forecast means it will rain at some point and somewhere within the location, 25% of the hours for which this forecast has been made.
- | There’s a related ambiguity in the way that these risks aggregate. If it rains between 1 and 2pm, does the risk of it raining at 2–3pm remain at 25%; does it go down because it’s already rained earlier in the day; or might it even go up, because the rain has now arrived and will likely continue?

If you’re anything like our hypothetical party planner, you probably thought you knew exactly what was meant by a 25% chance of rain. And the more you sought to understand the information that was being conveyed, the more you realised how many questions seemed to go unanswered.

One of the most important lessons here is to be really clear about what the risk pertains to. Researchers call this the ‘reference class’ of the risk. In other words, are we talking about time; or place; or the chances of an event? These subtle differences can make a big difference to our understanding of risk. And they can combine with our third issue – the difference between an absolute and a relative risk – to make it almost impossible for people to understand how this particular risk will affect them.

2. The chances of rain examples are adapted from Gigerenzer, G. (2014). Risk Savvy: How to Make Good Decisions. 3. This might seem a ridiculous suggestion, but it is in fact how the BBC weather app operates.

Being clear about the absolute risk (not the relative change in risk)

In 2019, several British newspapers reported on the newfound carcinogenic properties of processed meats. The articles followed the publication of World Health Organisation data showing that eating 50g of processed meat a day increased the risk of bowel cancer by 18%. In other words, they focused on the relative change in risk. When presented in this way, you can see how someone might conclude that eating bacon or corned beef is indeed a deadly pursuit.⁴

But the problem with relative risks is that they don't tell you much about what the actual chances of suffering from a particular affliction might be, especially if the risks are actually very low. This is because a 1 percentage point increase of death when your starting point is low (say from 2 to 3% chance of mortality = 50% increase) is much greater than it is from a higher starting point (80 to 81% chance of mortality = 1.25% increase in risk).

If you look again at the processed meat problem in this light, you start to really understand what the implications of over-consumption might be. Cancer UK estimates that the absolute lifetime risk of bowel cancer is around 6%. Which means that eating bacon every day, for example, increases the chances of getting bowel cancer from 6 to 7%. In other words, there are risks associated with eating processed meat. But suddenly they don't look nearly as deadly as The Sun would have us believe.

We ran a study to test the effect of people's ability to understand relative versus absolute risks, and found that if a risk is just presented in relative terms, very few people indeed are capable of understanding what the actual risk to them might be (see Box 1.2 below). But there are simple ways of conveying this information which transforms people's understanding – the subject of the next section.

Overcoming all of these challenges using natural frequencies

The Covid, weather and processed meat examples show us the challenges we all have as human beings of understanding and computing probabilities into meaningful information that we can use to inform our decisions. But thankfully, there is a relatively straightforward solution to these challenges.

It is to convey and then ideally present this information in terms of a group of 100 (or 100,000) representative individuals. And to show what happens to those individuals as they face the risks that you are trying to convey. Let's apply this to our processed meat example. Rather than talking about increasing percentages of risk, you can focus on 100 people. And show that, by consuming more than 25g of bacon every day, you go from six to seven of them developing bowel cancer.

Box 1.2: Relative Risk vs. Natural Frequencies

We recruited a representative sample of 2,000 participants in both the UK and U.S. to take part in a study to test whether it was easier for people to understand risks when presented in terms of 'natural frequencies' as opposed to a relative change in the risks presented.

Participants were randomly assigned to two groups, with each group seeing the same findings from the same study presented differently:

4. What's behind the sausage wars? Three questions to ask of any contested claim (Spiegelhater, 2019)

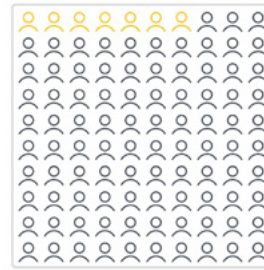
- Group 1) Relative Risks:** participants read about this relationship in relative terms ("risk increased by a fifth"), as it appeared in a newspaper.
- Group 2) Natural Frequencies:** participants saw a visual graphic (below) illustrating the absolute increase in risk in 100 members of the population (6 to 7).

In a random selection of 100 people who ate **less than 25g** of processed meat per day:



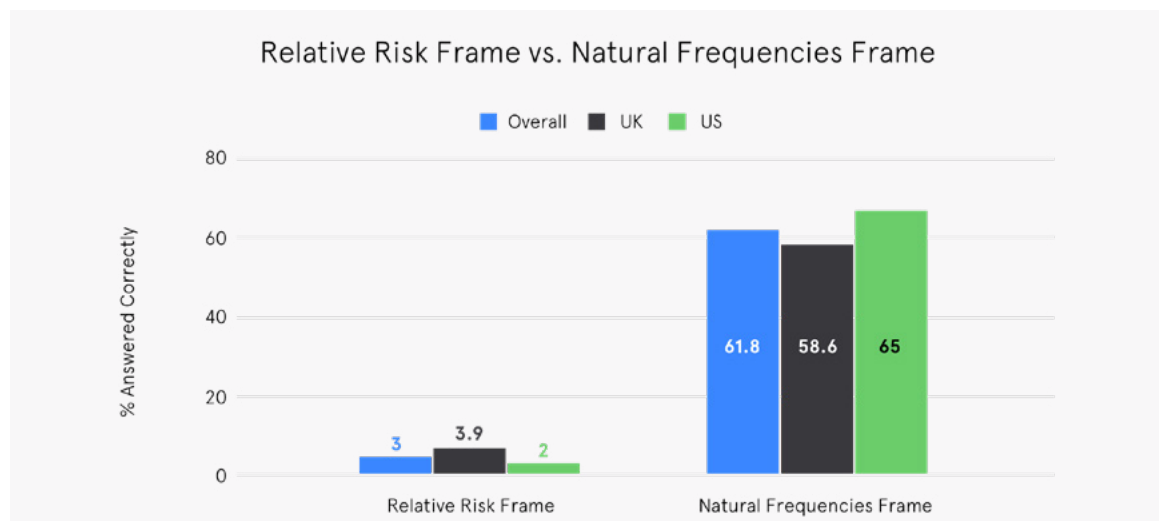
6 people developed bowel cancer (6%)
94 did not develop bowel cancer (94%)

In a random selection of 100 people who ate **more than 25g** of processed meat per day:



7 people developed bowel cancer (7%)
93 did not develop bowel cancer (93%)

We then tested people's comprehension of the risks faced by those eating more than 25g processed meat per day by asking them about the likelihood of these individuals actually developing bowel cancer. Just 3% of participants who saw the risks presented in relative terms answered this question correctly, compared to 61.8% of those in the absolute condition.



Participants' responses showed that people were significantly more likely to upwardly adjust their perception of the risk of eating processed meat when they saw the risks presented in relative terms. And, equally importantly, participants in this group were less likely to really understand what the findings from this study meant in practice.

It turns out that most of us find it very difficult to understand the nature of the risk that is being conveyed to us, when it is presented purely in terms of a relative change. And almost all of us find this more intuitive way of conveying the information – using natural frequencies – much easier to get our heads round.

This same principle can be applied to the communication of any kind of risk – from weather forecasting to processed meat consumption. And helps to avoid the pitfalls we saw earlier in terms of different frames (a negative frame ultimately has the same outcome as a positive frame). This is why we think it should become a mainstay of the communications toolkit.



2. CHALLENGES OF PRE-EXISTING BELIEFS AND EMOTIONS

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We have seen how there are better ways of presenting information that enables us all to better understand the risks we face. If all human beings cared about was raw numbers, this might be the only thing that communicators of risk need to focus on. But of course, the reality is that all of us, in different ways, approach the risks we face and the decisions we take with a myriad of different pre-existing beliefs and emotions that affect how we react to this information. The result, as we shall see, is that the very same information (regardless of how it is framed) might be interpreted in completely different ways by two different people. Risk communicators need to be alive to this fact, which will inform how we communicate.

The effect of pre-existing beliefs: cognitive dissonance and confirmation bias

Imagine for a moment that you belong to a doomsday cult. The cult's prophecy is that the group will, at a known time and date, be rescued from the destruction of planet Earth by an alien craft. But when the time comes, there is no alien aircraft; the Earth is not destroyed; and life continues on as normal. As a member of that cult, how would you respond?

We might expect the members of the cult to understand that the prophecy had failed or was a hoax. And to use this information to change their beliefs and their practices. But when this set of circumstances was examined by psychologists in the 1950s, they found the opposite to be the case.⁵ The cult's leaders surmised that they had been given a second chance. And it was precisely because of the strength of the cult's belief that the Earth was saved.

This extreme example illustrates a psychological phenomenon known as cognitive dissonance. This term refers to the internal tension that we experience when holding apparently contradictory beliefs – a state of discomfort that we typically seek to resolve. The members of the doomsday cult, for example, had two ways of achieving this: accept that they were mistaken, or double down by rationalising the missing alien craft. Given the choice in such situations, the latter method of self-justification is often preferred to changing our beliefs, or even worse, conceding that we were wrong.

This reluctance to loosen our grip on our existing beliefs often results in a related behavioral tendency known as confirmation bias. This term refers to our propensity to interpret new information in ways that are consistent with our existing beliefs; and to avoid information that might contradict our pre-existing beliefs. And it was something that we wanted to test systematically in the context of the roll out of Covid-19 vaccines and the existence of individuals with strong beliefs about the efficacy of vaccines, which might affect their views when presented with new, objective information.

5. Festinger, Leon (1957). A Theory of Cognitive Dissonance

Box 2.1: Confirmation Bias – Beliefs about Vaccinations and Tennis Elbow

We ran a study, with over 4,000 participants from the US and the UK, to test whether a difference in existing beliefs led people to draw contrasting conclusions from objectively identical evidence.*

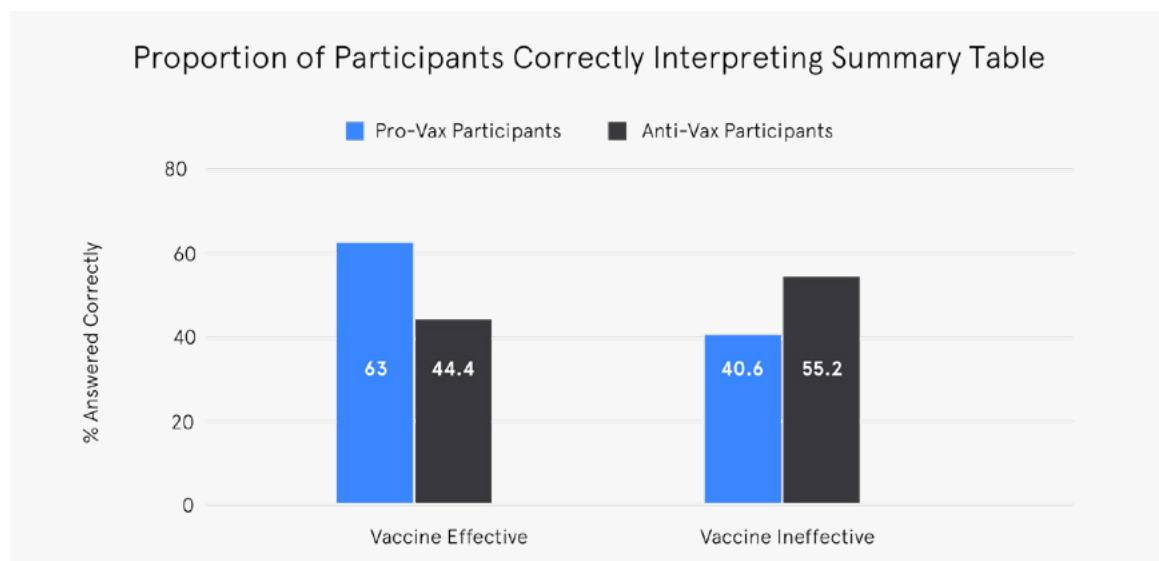
We first randomly assigned everyone to one of four groups, after separately soliciting whether they held generally positive or negative views about vaccinations. Participants in the first two groups saw a summary table of results from a recent vaccine trial in which people tested positive for the disease after receiving a vaccine or a placebo. The key difference between these groups was that for the first group, the numbers in the table indicated that the vaccine was **more effective** than the placebo (as in the table below). In the second group, however, the columns were flipped – such that the numbers indicated that the vaccine was **less effective** than the placebo.

Type of grip	Developed tennis elbow	Did not develop tennis elbow
Used forearm tape	223	75
Did not use forearm tape	107	21

Participants randomly assigned to the third and fourth groups, on the other hand, were both presented with a table describing results from a study on tennis players' use of forearm tape and their likelihood of developing tennis elbow. The difference between the groups was the same as in the vaccine tables – one group saw a table showing forearm tape to be effective, and the other saw a table showing its ineffectiveness.

Treatment	Tested positive	Did not test positive
Vaccine	223	75
No vaccine (placebo)	107	21

As you may have noticed, the numbers in the above tables are exactly the same. What we were interested in was whether holding stronger views about vaccinations might affect an individual's ability to impartially judge vaccine data, while not affecting their ability to judge the same data in relation to a condition about which they had no prior interest (namely tennis elbow).



* Our experiment design was based on a study conducted by the World Bank and DfID entitled 'Biased Policy Professionals' (Banuri et al., 2019)

When viewing the vaccine trial table, **63%** of pro-vax and just **44.4%** of anti-vax participants answered the same question about the effectiveness of the treatment correctly ($p = .002$). But there was no difference between pro- and anti-vax answers to the tennis elbow question (58.1% of pro-vax and 60% of anti-vax participants answered correctly, $p = .93$). This finding was reversed when we flipped the data so that it showed that the vaccines were ineffective - in this instance, the anti-vax respondents were more likely to get the answer correct.

These results showed that existing beliefs greatly influenced people's ability to objectively evaluate the information presented to them. And the stronger the existing beliefs, the stronger the effect for the vaccine table. For example, **63.8%** of strong pro-vax participants answered correctly, compared to **54.2%** of less strongly pro-vax participants (note that most of the pro-vax participants were strongly pro-vax, which is why the average came to 63%). And among those less supportive of vaccines, **40%** of strong anti-vax and **51.9%** of weak anti-vax participants answered correctly.

These may seem like extreme examples. But all of us hold existing beliefs about myriad risks we face, and are more influenced by them than we often realise. As we see in Study 2.1, for example, people who are both pro- and anti-vaccine suffer from 'confirmation bias', but in opposite directions. And in these instances, providing objective information does not seem to help.

In practice this means that we cannot rely on information alone to convey risks. And in some situations, seeking to do so may have the opposite of the intended effect. It also means, as we shall see, that we need to think about how and who is conveying a message, as messages conveyed from a particular camp (for example, a member of the cult vs an outsider) will be interpreted in radically different ways.

Understanding our emotional reaction to risks

Imagine that we have wound back the clock to the months immediately after the attacks of September 11th, 2001. The image of planes crashing into the Twin Towers in New York are still very much in your mind as you think about a trip you need to take from New York to Boston. You would normally catch the flight, which takes just over an hour. But the memory of the attacks remains ever-present in your mind. So you decide to drive instead. You feel that under the circumstances, this is the safer option.

In the aftermath of the attacks of September 11th, hundreds of thousands of people across the US decided to get into cars to make trips that they would previously have made by plane. The result? Researchers have estimated that more people died in fatal road accidents as a result of switching to a car than the total number of people who died on board planes that fateful day.⁶ It remains the case today that the most dangerous part of a plane trip is the drive to the airport.⁷

Psychologists call these particularly salient risks that capture our imagination dread risks. They are related to a wider psychological phenomenon known as the availability heuristic, in which information that we can readily recall is judged to be more important than other risks which come less readily to mind.

The impact of this effect is difficult to understate. It results in us systematically overrating the chances of being afflicted by certain categories of risk – like terrorist attacks and plane crashes – and systematically underweighting the risks of events or actions that are more difficult to bring to mind – like cardiovascular disease, or respiratory disorders (before Covid).

6. Gigerenzer, G. (2004). 'Dread risk, September 11, and fatal traffic accidents'. 7. Gigerenzer, G. (2014). Risk Savvy: How to Make Good Decisions.

Bringing emotions back into the way we communicate risk

The challenge with dread risks and the availability heuristic is a familiar one. These behavioral effects cannot be countered with rational appeals to more information and numbers. They are all-too-human psychological and emotional reactions to the challenges we face in our every day lives which often (though not always) have evolutionary foundations.

Our ancient ancestors roaming the plains tens of thousands of years ago would have been prudent to avoid certain (dread) risks that might have wiped out an entire tribe, even if the chances were low. In the 21st Century, they are more likely to take the form of emotional responses to situations we face in our lives.

So in order to deal with this set of emotional challenges, we need to bring emotions back into the way that we communicate risks. There are many ways in which this can be done. But a good starting point, when we think that a risk is being under-weighted, is to tell the stories of the victims of that risk, rather than relying upon the numbers alone to do this for us.⁸

An additional problem with relying on numbers is that as they increase, our sensitivity to them tends to decrease. This is known as 'psychic numbing'⁹, and is captured by the infamous quote often attributed to Josef Stalin: 'one death is a tragedy, a million deaths a statistic' (see Box 2.2 below for studies that show this effect in practice). A recent study entitled 'The more who die, the less we care' found evidence for this insensitivity to large numbers in the language used in online news articles and social media posts.¹⁰

This is related to a behavioral effect long-known to charity campaigners called the identifiable victim effect.¹¹ In charitable giving, people tend to give larger donations when there is a specific, identifiable person, which is why so many organisations now focus on the individual story rather than majoring on the impact of their mission overall. We need to bring this sentiment into risk communication.

Box 2.2: Scope Insensitivity

A wide range of studies show the effect of scope insensitivity. These studies tend to focus on asking people how they would respond to different situations, in which the number of individual people or animals affected by a disaster is changed by multiples of ten. They reveal that we tend to say that we would respond similarly to the same scenario, regardless of the numbers affected.

For example, in one study¹² participants were asked the following question: "(2,000, or 20,000, or 200,000) migrating birds die each year by drowning in uncovered oil ponds, which the birds mistake for bodies of water. These deaths could be prevented by covering the oil ponds with nets. How much money would you be willing to pay to provide the needed nets?" Participants' mean stated willingness to pay was \$80, \$78 and \$88, respectively, for saving 2,000 birds, 20,000 birds or 200,000 birds annually.

8. Sunstein, C. (2020). 'How to Fight Back Against Coronavirus Vaccine Phobia'. 9. Fetherstonhaugh, D., Slovic, P., Johnson, S., & Friedrich, J. (1997). 'Insensitivity to the value of human life: A study of psychophysical numbing'. 10. Bhatia, S., Walasek, L., Slovic, P., & Kunreuther, H. (2020). 'The more who die, the less we care: Evidence from natural language analysis of online news articles and social media posts'. 11. Jenni, K., & Loewenstein, G. (1997). 'Explaining the identifiable victim effect'.

Similarly, a separate study¹³ found that Toronto residents were willing to pay only a little more to clean up all the polluted lakes in Ontario than to clean up polluted lakes in a particular region of Ontario.

In the non-profit sector, researchers sent direct mail solicitations to over 50,000 prior donors for a charity which included offers to match people's donations.¹⁴ They found that the match offer increased both the revenue per solicitation and the probability that an individual donates. While comparisons of the match treatments and the control group consistently reveal this pattern, larger match ratios (i.e., \$3:\$1 and \$2:\$1) relative to smaller match ratios (\$1:\$1) had no additional impact.

What all of these studies show is that we cannot appeal to people's emotions in ways that seek to simply provide people with the basic facts. And similarly, we cannot fight confirmation bias and cognitive dissonance solely with lots of new information which confounds the views of the person we are trying to influence.¹⁵ In all likelihood, this information is likely to have the opposite of the intended effect: it will be reinterpreted to support the individual's existing views.

In order to have a more positive impact upon individuals with particularly strong, pre-existing beliefs, we need to identify people who are seen to be 'one of us' or encourage high profile individuals to whom they can relate to convey the message. We will explore this in more detail in the following section.¹⁶

12. Desvousges, W. H. (1992). Measuring nonuse damages using contingent valuation: An experimental evaluation of accuracy.

13. Kahneman, D. (1986). Comments on the contingent valuation method. 13. Karlan, D. & List, J.A. (2007). Does price matter in charitable giving? Evidence from a large-scale natural field experiment. 14. Sunstein, C. (2020). 'How to Fight Back Against Coronavirus Vaccine Phobia'.

15. Sunstein, C. (2020). 'How to Fight Back Against Coronavirus Vaccine Phobia'.



3. THE SOCIAL SIDE OF RISK: MESSENGER AND PEER EFFECTS PREEXISTING BELIEFS AND EMOTIONS

3. CHALLENGES OF PRE-EXISTING BELIEFS AND EMOTIONS

When organisations think about conveying risk, they will of course focus on the content of the message. But it is often the case that much less time is spent focusing on who is going to convey a particular risk to the audience that they want to influence. As we shall see, however, it is this focus on *who and how* that can often help influence how we interpret the information that is being conveyed. And ultimately whether we will take action on the back of it.

The importance of the trusted messenger

Imagine that the Chief Medical Officer of the country in which you live is due to give a press conference about the impact of coronavirus cases across the country. She is dressed professionally and has various medical credentials that follow her title. She says that in the past month, cases have gone from 50 in 100,000 to 400 in 100,000 (an eight-fold increase). She then outlines a series of measures that we will be required to adopt. Do you trust what she says? Do you believe that the situation is as serious as she suggests it is?

Now imagine it is your Prime Minister or President who is holding the press conference. They are conveying exactly the same information, using exactly the same statistics, coming to exactly the same conclusions. Do you trust what they say? Do you believe that the situation is as serious as they are suggesting? Are there differences in how you judge the severity of the message between the Chief Medical Officer and your head of government, particularly if you didn't vote for them?

If you're anything like most people, you would be inclined to trust a medical professional much more than you would a politician. In fact, politicians languish at the bottom of Ipsos Mori's 'Veracity Index', which provides a measure for how trusted different professions are to tell the truth. Nurses, Doctors, Dentists, and Teachers occupy the top spots.¹⁷

We tested the effect of a messenger upon people's perception of risk in relation to the use of plastics, with some interesting results that differed in the UK and U.S. (Box 3.1) – illustrating the need to understand the cultural context of a message, as well as who is conveying it.

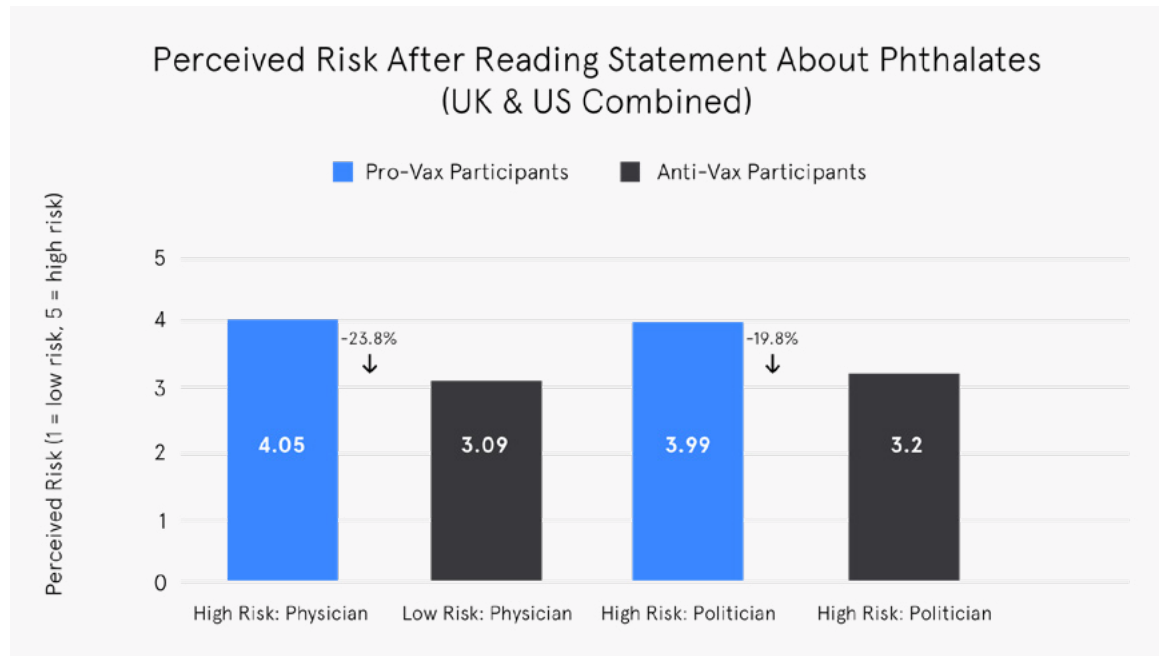
Box 3.1: Messenger Effects

We recruited a representative sample of 2,000 participants in both the UK and US to take part in a study to see how people's response to a message changed depending on who delivered it. In order to isolate this 'messenger effect', and to limit the likelihood of there being strong prior beliefs in our participant population, we chose the subject of 'phthalates'. Phthalates are a group of chemicals used in some plastic products, such as children's toys, about which concern has been expressed relating to potential health effects.

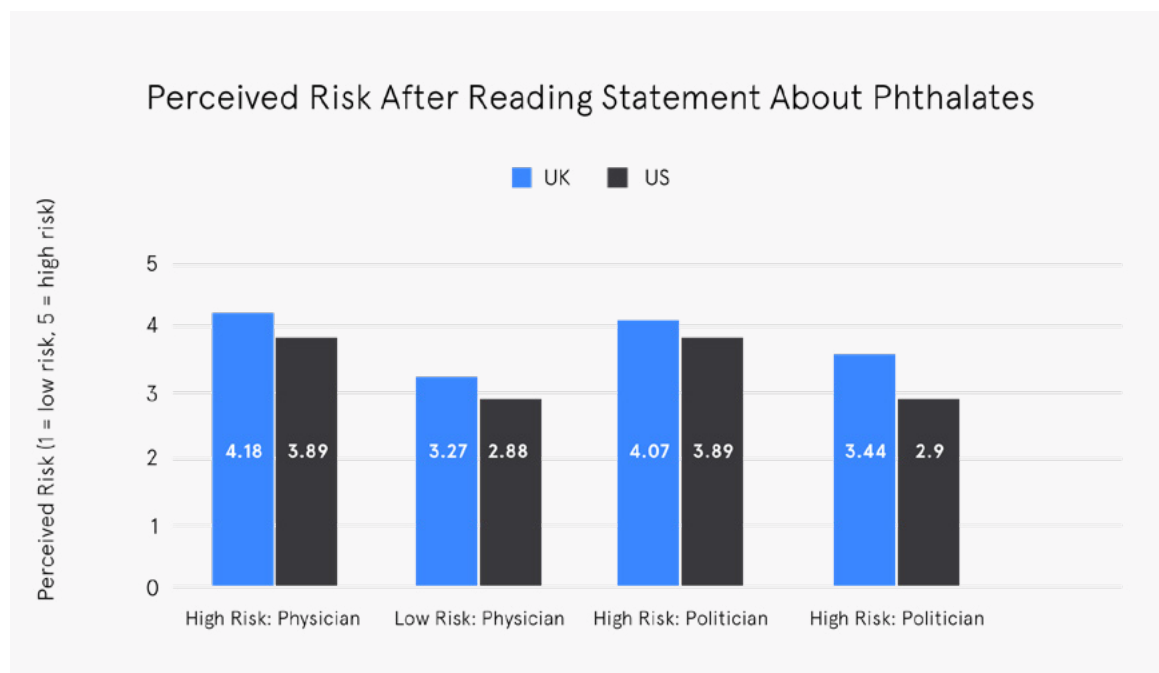
To test the effect of the messenger, we randomly divided participants into six groups. Each group read either one of two statements about the risks associated with phthalates: one highlighting the dangers posed by phthalates and the other citing the lack of evidence about such risks. Different groups saw these statements attributed to different people: specifically, a politician and a senior physician at the Harvard School of Public Health. After reading each statement, participants were asked how important they felt it was to avoid exposure to phthalates.

17. <https://www.ipsos.com/ipsos-mori/en-uk/ipsos-mori-veracity-index-2020-trust-in-professions>

The combined results from the US and UK are displayed in the below chart. On average, it seems to show that there is a stronger change in perceived risk when an individual is given a message from a physician (explaining that phthalates are low as opposed to high risk), than they are when delivered by a politician.



However, the overall effect is small and not statistically significant and is much stronger in the UK than in the US (where there is little difference), pointing to need to also understand the difference between audiences as well as between messengers.



For all the talk of people no longer listening to experts, studies consistently show that we are ultimately more likely to respond to their messages and advice¹⁸ Which explains why many (though not all) governments around the world have leant on their medical and scientific advisors to convey the key messages around the pandemic.

The influence of peers and high profile validators.

As we saw in the previous chapter, however, we also know that there will be some groups for whom professionals conveying particular risks might not do the job. Anti-vaccination campaigners, for example, might believe that a Chief Scientific Advisor represents part of the scientific establishment, and that it is precisely this community that is responsible for misrepresenting what they see as being the truth.

In these more challenging instances, one central lesson stands out. Which is that we are more likely to be influenced by people that we can relate to. Social scientists call these 'peer effects'. In other words, the influence that our friends, colleagues, family or those we are connected to through community or religious groups.

There is now compelling evidence that shows that when a message is delivered to us by other individuals that we consider to be part of our group, or whom we consider ourselves to be demographically similar, we are more likely to take action.¹⁹ Applications of these methods typically involve encouraging others to perform a certain behavior because it is in their own interests to do so. But we can make peer effects even more powerful by highlighting how completing an action helps to protect others.²¹

In the late 1990s, for example, only 47 percent of backseat car passengers in the UK used seat belts. Prior advertising campaigns designed to increase this figure had emphasised how buckling up might mean saving their own life, with little success. But in 1997 a new campaign instead stressed (with some powerful screenplay) how not wearing a seatbelt could harm others.²⁰ The campaign was credited with increasing the usage of rear seat belts from 48 percent to 59 percent, saving an estimated 18 lives per year.²¹

In addition to these peer effects there is an important role to be played by 'validators'. These individuals are typically high profile celebrities (actors or sports stars) who are respected and admired. If these individuals can be encouraged to convey the risks that we all face, and to report that they themselves have taken action, it will encourage more people to do the same.

Bringing emotions back into the way we communicate risk

The importance of what other people are doing ('social norms').

All of us are heavily influenced by what we believe other people around us are doing. And the more that behavior appears to be commonplace, the more pressure we feel to conform. For example, we might feel obliged to wear a face mask in a supermarket because we see that everyone else is wearing one. But equally we might feel social pressure not to wear a face mask if we perceive that no one else is.

The problem is that beliefs about others' behaviors are often poorly calibrated with the reality of the situation. Several studies have shown, for instance, that we tend to underestimate the number of people acting pro-socially, while overestimating the prevalence of anti-social behavior around us.²² This opens up an opportunity for risk communicators to highlight the positive behaviors of other people – ideally by highlighting that the desired behavior is 'the social norm'.

19. Dolan, P., Hallsworth, M., Halpern, D., King, D., & Vlaev, I. (2010). 'MINDSPACE: influencing behaviour for public policy'

20. <https://www.youtube.com/watch?v=mKHY69AFstE>. 21. Armstrong, J. S. (2010). Persuasive advertising: Evidence-based principles.

22. Duffy, B. (2018): The Perils of Perception; Goethals, G. R., Olson, J. M., Herman, C. P., & Zanna, M. P. (1986). 'Fabricating and ignoring social reality: Self-serving estimates of consensus'.

Studies show, for example, that telling people that they consume more energy than an efficient neighbour results in people saving more energy;²³ that highlighting how many other people have already paid their taxes encourages more to pay on time;²⁴ and that informing neighbours whether or not you have voted²⁵ all have significant effects upon behavior. What they all have in common is the focus on drawing people's attention to the positive behavior of others, which you too can aspire to and align with.

Descriptive social norms of this kind can thereby act to reinforce the impact of the individuals seeking to convey information to us about risk – whether a professional, a friend, or even a celebrity 'validator'. The more the message can convey that sense that people like me are already engaging in the desired behavior, the better.

23. Allcott, H. (2011). Social Norms and Energy Conservation. *Journal of Public Economics*, 95(9-10), 1082-1095. Ayers, I. (2009). Evidence from two large field experiments that peer comparison feedback can reduce residential energy usage. Working Paper No. 15386. Cooney, K. (2011). Evaluation Report: Opower SMUD Pilot, Year 2. 24. Hallsworth et al (2017): 'The behavioralist as tax collector: Using natural field experiments to enhance tax compliance'. 25. Gerber, A. S., Green, D. P., & Larimer, C. W. (2008). 'Social pressure and voter turnout: Evidence from a large-scale field experiment'



4. MAKING IT EASY TO TAKE ACTION

4. MAKING IT EASY TO TAKE ACTION

Enabling people to understand the risks they face through effective communications counts for little if it doesn't result in people taking action. For this we need to understand the links to behavior change strategies. And here the evidence is clear. Behavior change is more likely when information about risks is communicated alongside prompts to take the action required to reduce this threat.²⁶ And this works most effectively when we help people to create both specific plans for these actions and easy-to-follow rules to live by.

Using simple rules of thumb and 'bright lines'

Imagine that it's New Year's Day and you have decided that, this year, you are going to cut down the amount of alcohol you drink. You have been made aware of the fact that there are new medical guidelines which set out exactly how many units of alcohol you are allowed to drink each week in order to stay within what is generally considered to be safe.

The guidelines state that you can drink up to 20 units of alcohol per week, so long as you never exceed the consumption of more than 5 units on any given day. So you start your January with an alcohol units calculator, determined to make sure that you stay within these safe parameters. How likely is it that you make it into February, do you think?

Now imagine that you take a very different route. Instead of counting every unit of alcohol you drink, you estimate that you currently drink about 35 units of alcohol every week (a one-off calculation). And then decide that instead of calculating every drop you consume, you are not going to drink on Mondays, Wednesdays and Thursdays. How much easier do you think this method will be to follow?

The problem with the unit calculator method is that it is cognitively demanding. It requires our constant attention (including after we've had a few glasses of wine). Whereas the second method is easy to understand and creates very clear parameters that you can easily stick to.

Psychologists call this method 'bright line' thinking, because it is much easier for us to adhere to than more complex rules. The more complex rules may well be more optimal, if everyone adheres to them. But the problem is that they are often too complex for us to be able to stick to amidst the challenges of our every day lives. And when we do understand such rules, their complexity can serve as a smokescreen for tempting transgressions. Which is one of the reasons many religions adopt bright line thinking ('do not work on the sabbath'; 'do not eat pork'), and why they stick.

There are strong parallels here with the actions of people as rules around Covid become more and more complex. Governments around the world scrambled to devise rules around how many people you could meet with; whether this included meeting in your home or outside (and then whether gardens were included); how close you could be to another person in a shop, as opposed to a restaurant or bar; and whether you had to wear a mask in all or some of these public spaces.

Surveys of populations around the world suggested that people found these rules too complex and demanding to understand, let alone comply with, and that this was exacerbated by their tendency to change repeatedly. In these instances, the evidence suggests that it might be better to have very simple, 'bright line' rules that are much easier for people to comply with because they are cognitively less demanding. Importantly this means that even if they are not perfect for every situation, they are likely to lead to better results.

26. Witte, K., & Allen, M. (2000). 'A meta-analysis of fear appeals: Implications for effective public health campaigns'

Make it easy to take action

Imagine that you've just received an official looking letter from a Director of Public Health who covers the region in which you live. You open the letter which explains that, because you are in a high risk group (perhaps the result of your age, or some underlying condition) you are first in line to receive a vaccine. It doesn't explain how or where or when you can get a vaccine, but emphasises that it is in your own self-interest, and those of the wider community, to get one. What do you do? How likely is it that you will take action?

Now imagine a subtly different scenario. You receive the same looking letter from the same Director of Public Health. But this time, the letter explains that you've been booked in to receive a vaccine at a specific place (the local pharmacy, in the foyer of your local supermarket, or your place of work) and a specific time. You do not have to do anything unless you want to change the time or place of the vaccination, in which case there's a number included which you can call.

For something as important and potentially life changing as getting a vaccine for Covid-19, we might think that the minor inconvenience of having to work out exactly where to go to get your vaccine wouldn't deter anyone. But study after study has shown that these 'friction costs' prevent us from taking action time and time again; and that simple changes in the way that we support people to plan can significantly increase people's tendency to take action.

One study, for example, shows that booking someone into receiving a flu jab, and including a simple map that shows where the person has to go to receive it was enough to significantly increase attendance rates. Another shows that getting someone to think about when and where they will go to receive a vaccination (rather than simply the fact that they will get one) also improves show rates.

Box 4.1: Boosting Vaccine Uptake with Implementation Intentions

Years of research show that the simple act of making a plan can increase the likelihood of an individual following through with a certain behavior. And there is good evidence to suggest that this finding can be applied to the challenge of achieving high vaccine uptake in a given population.

One of the first studies of this technique was carried out on a group of Yale University seniors, whose take-up of tetanus inoculations was recorded by a team of social psychologists.²⁷ Some of the seniors were randomly assigned to a control group, who were informed about the effectiveness of tetanus jabs and their availability on campus. The others were allocated to a treatment group, who also received a campus map highlighting the health centre's location and prompts to review their weekly schedules and to select a time when it would be feasible to get their jab. The researchers found that 28% of those in the treatment group received their vaccination, compared with just 3% of those in the control group.

More recent studies have provided further evidence for the effectiveness of this approach. Results published in 2011 from a field experiment conducted with 3,272 employees at a large US firm, for example, also showed that encouraging people to form concrete plans about receiving an influenza vaccine boosted uptake.²⁸ Simply prompting people to write down a date and time when they might get their shot saw the vaccination rate in this treatment group rise to 37.3% from 33.1% in the control group (who were just told when the vaccine clinic was open).

Psychologists call these 'implementation intentions'.²⁹ And they are effective because they enable us to create a cognitive link between an intended action (getting a vaccination; doing exercise; doing 30mins of work on an assignment) and a specific moment in time (this coming Tuesday; after my alarm rings in the morning; straight after I've had lunch). This link acts as a prompt at that moment, which results in it being much more likely that we will follow through on the intended action.

So in other words, when it comes to communicating with people about the actions we want them to take concerning the risks that we are conveying to them, making it easy to take action should be a really key consideration.

27. Leventhal, H., Singer, R., & Jones, S. (1965). Effects of fear and specificity of recommendation upon attitudes and behavior. 28. Milkman, K. L., Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2011). 'Using implementation intentions prompts to enhance influenza vaccination rates'. 29. Gollwitzer, P. M., & Sheeran, P. (2006). 'Implementation intentions and goal achievement: A meta-analysis of effects and processes'

CONCLUSION

CONCLUSION

If there is a single lesson all communicators should take from the behavioral research on risk communications, it is that information alone is almost never enough in helping an individual to understand better the risks that they face.

The first reason why this is the case is that the way in which information is conveyed has a big impact upon how it is understood. As we have seen, we react very differently to a negative than to a positive frame (loss vs gain); and find it very difficult to understand the implications of relative changes ("20% increase") upon the absolute risk we face.

The second reason why this is the case is that we filter information out or in, depending on our existing beliefs or our emotional reactions to it. This means that it is possible for different people, with a different set of prior beliefs, to interpret the same information in radically different ways.

Third, we have seen that it is not just the information that is important. But who conveys it. Which means that the same information given to us by a politician, will be interpreted differently from information presented to us by a friend or a professional in a relevant field.

And finally, we have seen that if we want people to take action on the back of an understanding of the risks that they face, they are more likely to do so if we remove barriers in their way.

It is useful for communicators of risk to be aware of these factors when designing campaigns. And to build these insights into how these campaigns are then implemented, which might mean changing the message, building in a (positive) emotional component, and thinking about which messenger is likely to be most effective for which group.

If all of these things are done, we believe it will result in people more able to understand the risks they face. And more willing and able to manage these risks effectively.

| THANK YOU.