

Encouraging people who are CRED (capable, rational, ethical, diligent)

This article is about the surprisingly interesting matter of encouraging people at work and people who are friends and acquaintances. It is not about encouraging family and lovers, where the issues are somewhat different, nor about encouraging yourself.

It looks at what encouragement is, what should be encouraged, and what this can lead to over time. Finally, it considers some potentially controversial issues of fairness that can arise.

Encouragement defined

In this article, encouragement includes the following:

Encouraging words and body

language: Telling people they are doing something good and should continue or do more of it, smiling, and nodding warmly are all examples of this. The socially acceptable alternative is to provide no comment, neutral body language, or nothing more than polite praise or congratulations.

Preferential time and attention:

Spending more time with someone instead of moving on after a polite but superficial encounter is a form of encouragement. Giving people more attention and time are important forms of encouragement.

Preferential cooperation: Going beyond time and attention, we can encourage others by choosing to do business with them, or join their team or group, or offer them a mutually beneficial arrangement like lift-sharing or a commercial deal. We might give them moral support or speak highly of them to someone else.

Other preferential treatment: Going still further, encouragement can take the form of giving someone a job, paying them money to do what they do, paying them more money for doing more of it, educating them, lending them money or other assets, giving other forms of practical help, or admitting them to a group, club, or even a country.

Encouragement does not include punishments such as actual or threatened physical pain, harm, killing, and property damage. It does not include threats of loss of position or rewards, nor fines, scorn, insults, or shaming.

However, encouragement can still leave people feeling unhappy.

Encouragement might include giving someone verbal feedback that explains a decision and leaves the recipient feeling unhappy.

For example, a dishonest person might be offended by the following honest

explanation: 'We are looking for honesty. I didn't offer you the job because I noticed three lies on your CV, and because your reasons for wanting to work with us were vague and illogical.'

An enthusiastic but incapable person might be unhappy to hear 'We loved your enthusiasm but we also need expertise. The position of Chief Surgeon is only open to people with a medical qualification and experience of performing surgery.'

Encouragement will also include communicating that some characteristics are highly valued – more so than others – and this can also be upsetting, especially if badly timed. For example, if encouragement emphasizes the importance of maintaining a healthy body weight to someone who is obese then this may be upsetting to them.

Encouragement does not have to explicitly emphasize the importance of a characteristic to create this effect. Any encouragement implies that the characteristic is important.

It is likely that awareness of the difference between how we are now and how we want to be is important for motivating improvement.

Encouragement also includes giving feedback on how someone is doing. If the person is doing badly against a criterion then this too could cause unhappiness, even if the feedback is helpful and fairly put.

Encouragement is not the only reason that good things are given to people. For example, if a person is paid compensation for an injury that was someone else's fault then that compensation is not encouragement. The prospect of compensation can influence the decisions people make, which is a vital consideration in the insurance

business, but (in this article at least) it does not count as encouragement. The intention behind motor insurance is not to encourage people to have road accidents.

If a person receives some extra support to help them with a disadvantage (e.g. a disability) then this support is not encouragement. It is just an attempt to lessen the impact of their disadvantage. The intention is not to encourage people to be disadvantaged.

Redistribution of wealth by taxes or other means is not encouragement either. When a person receives social security payments from the government that does not count as encouragement, even though it may factor in the person's decision making. The intention is not to encourage people to be poor or unemployed.

Types of encouragement

It is helpful to divide forms of encouragement between:

- **messages** (e.g. saying a quality or behaviour is desirable/valuable, giving reasons for this, offering rewards for improvement, telling a person how they are doing);
- **matching to roles** (e.g. giving a job, making an introduction, making a deal); and
- **rewarding materially** (e.g. paying for performance).

If someone is not showing a quality that we want then it might be worth giving them encouraging messages to get them to start. However, they are only due for encouraging actions (matching to roles, rewarding financially) if they are demonstrating the desired qualities with sufficient consistency.

Uses of encouragement

Encouragement is used in a variety of interesting ways. Obviously, we *give* encouragement to other people. Less obviously, we *seek* encouragement and that can involve seeking out the people who are more likely to be encouraging, and seeking out occupations where we are more likely to be encouraged.

We use encouragement as individuals but a group can also use encouragement to build itself and its culture. A government can use encouragement similarly, promoting some kinds of behaviour and not others, via laws, education, and taxes.

Choosing qualities to encourage

Broadly, the qualities to encourage are those that are desirable and respond to encouragement.

For example, trying hard and being persistent are often desirable and often respond to encouragement. They are, to some extent, within the control of the person being encouraged.

However, there are also qualities that are not within the control of the person being encouraged but which we have to encourage in some ways because they are very useful. For example, being very tall is an advantage in some sports¹. It is not within the control of the player but still, by giving opportunities to tall people that are not given to less tall people, we encourage it. In the interests of performance, some encouragement of qualities outside the person's control is needed at times.

¹ But being shorter is an advantage in other sports, such as gymnastics.

Defining CRED

My personal preference is to encourage people for being capable, rational, ethical, and diligent. These need some explanation:

Capable: This means competent, able to do something, skilled, knowledgeable, perhaps also strong and athletic, where that is relevant.

Rational: This does *not* mean money-focused, selfish, emotionless, or obsessed with idealised mathematical models and solutions. These are long obsolete notions of rationality.

I mean a modern form of rationality (Simon 1996) that is broader, that recognizes the bounded nature of human cognition, that considers emotions, and that is not always conscious. In other words, we are not smart enough to think of everything so need to work within our limitations.

Being rational is the proper aspiration for science, but not all activity usually regarded as science is rational.

What is rational is not just a matter of culture or convention. Rationality works in practice and that is how, ultimately, we can test whether a method or inference is rational or not.

Deciding what is rational and what is not can be difficult, but usually is easy. I have been improving my ability to recognise rationality and irrationality for decades and will continue in this effort.

A person who is rational will usually be willing and able to think, prefers to use evidence and logic, and is willing to trust reasoning over familiarity when there is a conflict. Rational people shift their views with evidence and reasoning.

Rationality is best judged over the ordinary behaviours of people at work (e.g. Leitch 2014 and 2016), rather than

inferred just from a person's position on a particular issue unrelated to everyday life, such as alien landings or ghosts.

Ethical: This means co-operative, honest, and trustworthy. It is ethical to compete and try to win, but not to lie or cheat.

Ethics vary to some extent between cultures, so at least some details are partly arbitrary social choices. However, the underlying requirement is for people to cooperate for sustained mutual benefit, without the stress of continual threats of violence. Imagine living in a lawless society where you need to be alert at all times and every house is a fortress (or vulnerable). Or imagine living under a brutal dictatorship where private sector crime is under control but most citizens live in fear of the police, army, or religious enforcers.

The reality is that cultures are not equally ethical. Also, if people of a culture think their culture is morally superior that is not proof that it is.

As with rationality, distinguishing ethical from unethical can be difficult, but usually is easy, and we can get better at it if we try.

Sometimes thinking can be identified as faulty even though it is unclear whether it is accidental (irrational) or deliberate (unethical). (See Leitch 2016.)

Diligent: This means hard-working, focused, persistent, and conscientious. We cannot expect people to be completely capable, rational, and ethical at all times, so we should also look for people to be diligent in trying to be capable, rational, and ethical.

Other qualities are missing from this list for different reasons.

You might encourage your lover to be sexy or fun, but that's not appropriate at work. This list is for general acquaintances and workmates, not for lovers or family.

The list does not directly mention being friendly, persuasive, charismatic, good looking, powerful, popular, well-known, or rich. These are all things that many people encourage but I would rather not do so, at least not directly.

For example, some people might be persuasive because they are able to explain rational analyses very clearly. I would encourage them for their capability and rationality, but these also happen to make them persuasive. There are other ways to be persuasive that I would not encourage.

A person who is good looking might be that way partly because they take care of their health and stay fit. This effort is evidence of diligence, rationality, and capability so they can be encouraged for that. Someone else might be good looking because of a genetic advantage that they have exploited fully, but at the cost of spending hours every week and a lot of money on beautification.

Variations and effects

The extent to which encouragement is likely to make a difference to the CRED of people you are with depends on how much encouragement causes changes in behaviour and how much people vary in their CRED levels. If everyone already had the same CRED level and encouragement did not lift that level then there would be no value in encouraging people. It would not matter who you were with or how much you encouraged them.

However, the reality is that people vary greatly on CRED and encouragement can

change a person's behaviour. It is helpful to consider the characteristics in reverse order.

Diligent

It is not controversial to say that some people try harder than others and that encouragement tends to get people to try harder. Competitors at sports events can be lifted by a supportive crowd. There are counter examples of situations where performance is reduced by higher motivation, but these tend to be where greater effort does not improve performance.

However, this can be analysed a little more deeply by considering the reasons a person might be a low contributor. If you have ever been on a voluntary committee or part of a society that often needs volunteers to get things done then you will know that most people never volunteer. In contrast, some people almost always volunteer.

The differences in effort may be due to three things, among others. First, some people may be working very hard on other important things, so they do not have time or energy left to volunteer. Second, some people may be generally lazy. They spend their time watching sport or game shows on television, playing computer games, going fishing by the river, and relaxing in the evening in a bar. Third, some may have medical or other disadvantages that leave them lethargic or unproductive.

Encouraging energetic volunteers can be helpful if it spurs the frequent volunteers to do even more, encourages people with other priorities to change those priorities, inspires the lazy to do at least something, motivates the disadvantaged to try harder, or attracts other energetic volunteers to join.

Ethical

Psychologist Dan Ariely has performed many experiments that reveal the prevalence of cheating and the factors that drive it (Ariely and Jones 2012).

Over these he has observed that a few people are very dishonest, about two thirds of people are a bit dishonest, and the remaining third are honest (at least in the conditions created by his experiments).

In total, the greatest losses come from the two thirds of people who are a bit dishonest, not from the few who are out-and-out crooks.

The reason for this slight dishonesty is a tendency to bend the rules in our own interests, but only so far as we can still tell ourselves we are honest people. Dan talks about the 'fudge factor'.

This slight dishonesty is quite strongly affected by circumstances and can sometimes be eliminated completely by timely reminders of ethical themes.

From this research we know that *on average* people are not honest, but there are honest people as well as dishonest people. It is not true that everyone is a bit dishonest to the same extent. Furthermore, some quite simple encouragement to be honest can make a huge difference, at least for a short time.

More difficult situations arise where the dishonesty is an established pattern of behaviour (e.g. classic corruption) or where it is perceived by the perpetrators as a moral duty (e.g. nepotism).

Although these might be more resistant to change it is even clearer that there are differences between people. Some people have become part of a pattern of dishonest behaviour and others have not. The difference is clear. There are also big differences in the extent to which people

perceive the need to look after their family and friends as more important than the need to uphold society's rules.

Rational

Seemingly endless studies have shown ways that humans are irrational. However, this again is *on average*. Look at the results of any of these studies in more detail and you will see that some people were more irrational than others and a few were not irrational at all.

Keith Stanovich is a psychologist who has been looking at these variations in rationality across different tasks for some years. He and his co-workers have found that variations in rationality on some tasks are related to intelligence, some to education, and some to neither.

Research on factors that can increase rationality is not so well developed.

My view is that, probably, many people who behave unusually rationally do so because they have learned to and they learned to because they believed it was desirable.

It may also be that, like cheating, irrationality can be reduced greatly by simple reminders, even if it is only for a short time on each occasion.

What research shows so far is that critical thinking develops as we age (Toplak, West, and Stanovich 2014), that instructions and even subtle prompts can improve rationality in some tasks (Alter et al 2007), but that some prompts you might think would promote rationality actually have the opposite effect. Usually, the problem comes from encouraging people to tackle a problem mathematically when they don't have the skill and time to do it correctly (e.g. Hammond et al 1983). Give them time and a computer spreadsheet and the best performance of all is easily achieved.

Capable

This is probably the least controversial characteristic of CRED. Clearly there are vast differences in capability on particular skills between people, and those skills can be developed by effort, among other things, in most cases. That effort is influenced by encouragement.

The consequences of encouraging CRED

These need to be analysed by who is doing the encouraging, and in what direction.

An individual who encourages CRED

If you systematically encourage people around you to be CRED but do not provide such encouragement for other qualities you do not desire then the consequences are likely to be as follows:

- A slight increase in the level of CRED from people you are with, reflecting behaviour change (even if it is only when you are around).
- Increased contact with people who are strong on CRED, and reduced contact with people who are weak on CRED, reflecting a change in the people that want to spend time with you.
- Increased success in your initiatives, reflecting the tendency for high CRED people to get better results than most others, while low CRED people can destroy results with their uncooperative, irrational, lazy behaviour.

An individual who seeks encouragement for being CRED

The consequences for an individual who seeks encouragement for being CRED need to be considered within an overall

strategy. That strategy is built on the idea that CRED is about making an effort, thinking straight, cooperating with others who are similar, and getting results.

The gigantic increases in life expectancy achieved by modern human societies are the result of developments in science and technology (especially medicine, agriculture, and materials) that have been driven by people who have been, usually, high on CRED.

Those developments also, often, involved greedy, exploitative bullies who turned good ideas into industries. However, without the high CRED people who did the real work the positive developments would not have happened.

So, a career strategy for a person high on CRED would include seeking work with the following characteristics:

- The workplace values CRED, as do other stakeholders.
- Performance is objectively comparable, quickly, and reliably.
- Technical solutions/innovations that really work are available, but not being explored energetically.
- The advantage of new insights, discoveries, or inventions is clear and quick to establish, with simple evidence.
- Scientific progress is relatively quick, cheap, and easy to show.

It also involves avoiding work where:

- Cooperation of many people is required, and many are not high on CRED or, worse, are determinedly unethical.
- There is a dominant ideology that is flawed yet strongly defended and imposed².

² Perhaps this is one reason why so few politicians have a science background.

A person high on CRED who seeks encouragement for it within this strategy might expect to suffer less frustration than someone who is not so selective. Whether they enjoy more rapid career progress depends on the level of competition, their own abilities, and luck.

Groups that encourage CRED

If many people encourage CRED and seek encouragement for CRED then it is likely that they will tend to find each other and spend more time in contact with each other.

This has probably happened to a significant extent already, with the formation of scientific and technical businesses and societies, schools of science, engineering, and mathematics at universities, and groups focused on combating pseudoscience and dangerous religions.

If the idea of being with others who talk things through logically, thoroughly, amicably, and with respect for evidence, appeals to you then this probably sounds attractive. Imagine being free from the all-too-familiar point scoring, dirty debating tricks, and ingrained misconceptions that will not shift. Imagine groups where the best ideas are soon the ones to get most support and action.

Even if groups do not achieve quite this level of frustration-free cooperation they can still be nice places for high CRED individuals to hang out.

Societies that encourage CRED

But what if CRED was encouraged, not just in isolated groups of people seeking refuge from the rest of society, but so widely that government itself encouraged CRED?

This is just a fantasy, but imagine politicians who are capable, rational,

ethical, and diligent. Imagine them tackling the problems of the world in that way. Imagine their activities being reported by journalists who are also capable, rational, ethical, and diligent.

As I said, this is just fantasy.

The situation today is so poor that, if you were to vote only for politicians who were CRED, you would rarely vote.

Fairness

Giving encouragement, particularly by encouraging actions, means treating some people better than others.

For example, we prefer to give particular jobs to people who are capable of doing those jobs. Who would feel comfortable under a surgeon with no medical training? Would it be acceptable to put fire safety decisions in the control of someone who has no knowledge of fire safety, or someone who has a track record of corruption?

At the same time it is illegal in some countries (including the UK) to treat people differently in some situations based on their gender, race, religion, and so on. For some people this is a very, very important requirement that goes far beyond what is legally required.

At the same time, what the law requires is already beyond what most people would recognize as intuitively obvious to a person with no wish to act unfairly and who tries not to. Fully complying with the UK's Equality Act of 2010, which combined previous legislation into one Act, requires special knowledge of its rules. It also requires a legal expert's understanding of some of its vague terms, including the crucial phrase 'proportionate means of achieving a legitimate aim', which is not defined within the Act.

Since I am not a lawyer specialising in this area, nothing written below should be taken as legal advice, or as a statement about my personal policies or those of my company.

With that bit of legal clarification in place, what can some examples reveal about the principles most people would naturally apply when trying to encourage CRED fairly?

Example 1: motor insurance

The example of pricing motor insurance in the UK clarifies some of the principles involved.

An aggressive, reckless, unskilled, inexperienced driver with an expensive, powerful car, living in an area where car crime is common, driving many miles each day, and having no off-street parking at home will probably claim on insurance more often and those claims will be more expensive. Insurance companies study the statistics of claims very closely in deciding what premiums to charge for their insurance (see Be Wiser Insurance article, 2014).

In the past they were allowed to use any information they wanted to distinguish between drivers and so offer lower prices to some customers and higher prices to others.

Some factors relate to the average level of claims directly, such as the purchase cost of the car and cost of repairs to it. It is hard to see how those could not be related to the average cost of claims.

Other factors have a statistical but not a necessary link to average claims. Men, on average, have higher claims than women. On average, men drive more miles and drive more aggressively, but that does not mean that every man drives a bit further and more aggressively than every woman. It just means that the

distribution of distance and aggressive driving is a bit different overall between the populations of male and female drivers.

There are some remarkably aggressive female drivers and some unusually tolerant, patient male drivers. There are some male drivers who do few miles and some female drivers who do many.

For most people it seems unfair to charge men more for insurance just because they are men. It is harsh to those patient, low mileage male drivers and unnecessarily generous towards the aggressive, high mileage female drivers.

In the UK, following a ruling by the European Court of Justice in 2011, law makers stepped in to stop insurance companies from charging different premiums for men and women. This applied to motor insurance policies among others.

Instead, some insurers have started offering lower rates to drivers who drive safely, as measured by gadgets in the car. This more directly assesses driving and gets away from using unreliable statistical links.

(This approach is in addition to the long-established method of cutting premiums for people who have not made a claim for some time in the past i.e. the 'no claims discount'.)

At the moment this direct measurement approach is still relatively rare and it is usually possible to find insurance that is even cheaper but without the gadget. Probably, this is partly due to the cost of the gadget and of processing information from it.

But, imagine that the gadgets became almost universally required so that all aggressive, high mileage drivers ended up paying a bit more for insurance. On average, this would mean men paying

more for insurance than women, because on average men drive further and more aggressively than women. However, this is a price gap driven by the actual behaviour of drivers and does not penalise safe male drivers.

Furthermore, it even incentivizes all drivers to drive safely. In contrast, setting different prices for being male and female does not have a useful incentivizing effect. Measuring safe driving directly is socially desirable in encouraging safe driving.

This example probably seems reasonable to you, even though it is usually women who get a better deal from equality laws³. Basing prices on safe driving rather than on convenient but unreliable demographic facts is fairer, but also more accurate and reliable, despite the higher cost of the assessment.

This example works because there is a more precise, fairer alternative to just considering if the driver is male or female.

Unfortunately, motor insurance premiums are still also set on the basis of the age of the driver. This is despite age being a 'protected characteristic' under the Equality Act of 2010 (as is sex).

Statistically, drivers between 18 and 20 years old do make the most claims and they are the most expensive claims. That is, they have more accidents and they are more serious. Also, a new driver cannot benefit from a no-claims discount because they have no track record of safe driving.

As with sex, age is only statistically related to driving ability, not necessarily related. There are some young drivers

³ With some other types of insurance and similar financial deals women did get a better deal when the law changed.

who are patient, skilled, safe drivers and some older drivers who are anything but.

Age and years of driving experience will tend to be statistically linked, but of course there are people who learn to drive later in life. They are inexperienced even though they are in a statistically safer age range.

Insurers could perhaps try to go beyond the merely statistical information provided by age by considering other sources of evidence that more directly relate to driving safety:

- Years of driving experience.
- Number of attempts made to pass the driving test.
- Scores on each element of the driving test, at each attempt.
- Scores on tests devised by the insurer, such as an extended risk awareness test, or a more focused theory test, or even a practical test arranged by the insurer.
- Any insurance claims made while a learner, and the lack of such claims.
- A biological test that identifies past consumption of alcohol or other drugs that affect driving, or that identify chronic sleepiness.

The driver might also be asked to have a driving measurement gadget installed so that actual driving behaviour can be assessed as soon as possible, perhaps leading to a rapid reduction in premiums (i.e. within weeks) if safe driving is shown.

Less directly relevant information, but still more directly relevant than age, might be:

- any criminal record;
- educational attainment;
- driving record of the driver's parents and siblings; and
- any criminal records of the driver's parents and siblings.

The main conclusion from this example is that it is fairer, and often more efficient overall, to use directly relevant evidence than to rely on weak statistical evidence.

Example 2: countering crime

In the case of motor insurance the driver is usually willing and able to provide information the insurer wants. However, in countering crime, from street crime to terrorism, this is not the case. Not only do the criminals do their best to avoid giving information – truthful information anyway – but even innocent people will sometimes object strongly to being asked questions or searched. They might follow this up with making a public fuss over being questioned, held, or searched, using their innocence as evidence that the scrutiny was unjustified.

The result of this restriction on available information is that, sometimes, crime fighters have to work with information that is only statistically linked to crime, not necessarily linked.

Consider the hypothetical case of a police team with information that a drug gang is smuggling drugs from an African country to the UK using people as 'mules'. The mules swallow packages of drugs wrapped in plastic and then fly to the UK. Imagine that the gang prefers to use local mules from its home town because the gang can control them and their families, and because the poverty makes locals more willing to cooperate in this dangerous activity. In short, their mules are exclusively black Africans.

As officers wait at Heathrow airport to scrutinise passengers arriving from the country involved it is hardly surprising if they pay much more attention to black Africans from the country involved than to white passengers or non-white passengers from other countries.

One consequence is that officers may spend a lot of time questioning and even physically examining a black African passenger who appears anxious or unwell, and is very reluctant to answer questions or accompany them to an interview room. If that passenger is in fact an innocent traveller with a stomach upset then the experience could be unpleasant for them.

Would the officers be acting fairly if they picked out black African passengers and not equally anxious looking non-black passengers?

I think most people would say this was fair. Given the information available about likely smuggling and the importance of the crime, it would be absurd to ignore the information provided by race and nationality, even though it is only statistical.

Their action is to gather more information, so the passenger is not being convicted with the evidence, arrested, or even accused. If the passenger's answers allay suspicion and the officers end the conversation with a polite apology and wish the passenger a safe onward journey then that should be enough for any reasonable passenger. Effective law enforcement requires this kind of statistical targeting at times to guide investigation.

However, flawed use of statistics to guide policing can be a problem. Imagine that a police force finds that it can control crime to some extent by just patrolling and watching for signs of crime and criminals. However, it only has enough officers on foot and in patrol cars to tour part of its territory.

To decide where to focus their patrols they review statistics on the locations of crimes they have previously recorded. These statistics include crimes committed and then reported to the police and

crimes identified on the street by the patrols. Consequently, the level of crime appears higher where the police have been patrolling, even though there may be other areas with similar levels of crime, more of which is unrecorded.

If they follow the numbers without understanding this effect then the police will just continue patrolling the areas they have patrolled in the past, learning nothing new.

Residents in the unpatrolled areas might feel unfairly treated, though it is also possible that residents in the patrolled areas feel unfairly treated because more of their citizens are questioned and perhaps also more are given warnings or arrested.

But is this kind of targeting fair? It is not, and it is not optimally efficient either because the skewed crime statistics are not guiding the police to patrol the most needy areas. However, if this behaviour is the result of not understanding the logical mistake being made then it is not deliberate and statistical skill might be needed to remove the problem⁴.

The conclusion from this example is that it can be fair to use weak statistical evidence when there is no practical alternative, the stakes are high, the next action is to find out more, and a biasing cycle is avoided.

Example 3: evidence in court

It is an established rule in most criminal trials by jury that the jury is not told if the defendant has previously been convicted of another crime, or of any previous suspicions or arrests.

⁴ Perhaps do an initial study by sending patrols out to random locations at the same times and calculating the crimes identified per hour when patrolling.

Since criminals often commit crimes repeatedly during their lives their past record is, statistically, a powerful piece of evidence on guilt and jurors would use it if they knew.

In the UK, once the jury members have given their verdict, and if it is 'guilty', they then learn of the defendant's past record as the lawyers and judge decide on the punishment. This can feel like learning if you were right or not.

Once, when I served as a juror on a stabbing case, the barrister speaking for the defendant described his client as just being in the bar for 'a quiet drink' and generally did his best to portray the man as a nice, innocent guy.

After we, the jury, found the man guilty we learned of his past history of senseless and brutal violence. That same barrister said to the judge 'my client has a drink problem, an aggression problem, a personality disorder, and I believe your honour has seen a copy of the psychiatrist's report.'

My thought on hearing that was: 'Gotcha.'

The justification behind this rule of holding back past criminal history probably goes beyond the fact that past convictions are only statistically related to current guilt. The additional point is perhaps that a person might be convicted of one crime, maybe on marginal evidence and incorrectly, but then find themselves vulnerable to even weaker evidence in any future trial. With the current approach each court case is to decide if another crime is proven beyond reasonable doubt and is to be added to the defendant's tally.

However, past convictions can be used by the police to *guide* their investigations.

Court cases provide evidence of another principle in our use of statistical evidence,

which is that very compelling statistical evidence is admissible.

Testing to compare DNA in samples taken from a crime scene to that of a defendant is not infallible. There is a very, very slim chance that two people will have the same DNA profile at the particular points on the human genome that are used for comparisons. This is in addition to the chance of an identical twin existing and the slight possibility of genetic material being shared between a mother and her unborn child.

The conclusion from this example is that using very strong statistical evidence can be fair.

Example 4: hiring

Hiring people to fill jobs is a topic given considerable coverage in the UK's complex Equality Act of 2010, but you don't have to have one of the Act's 'protected characteristics' to have experienced unfair decisions about interviews and job offers.

I personally have been rejected for jobs because of being three years too old (when I was 24), for being too knowledgeable, and I'm pretty certain that many people find my height and dark features a bit scary.

The following are some potential sources of evidence to use in hiring, starting with those most directly relevant and working down to factors that are almost always irrelevant. You should be able to see that, as the evidence gets less directly relevant, it feels less fair and rational to use it.

Directly relevant tests: Sometimes it is possible to test, directly, how well somebody can do a job. Bricklaying, hair cutting, and writing are examples of jobs that can be tested this way.

I once got a job as a marketing author thanks to a marketing manager who said: 'This terrible article was written by one of our consultants. If you can make something out of it you've got a job.' I got the job, eventually, once the HR department's objections had been overcome, and I was good at the job.

Prestigious architecture projects are sometimes awarded by running a competition and hiring the architect whose scheme is preferred.

Direct testing might focus on capability, but it could also study rationality and diligence, with a possibility of also testing ethics to some extent.

None of this offers hope to people who think they have a better chance if they rely on their contacts, charm, and finding an interviewer they have a lot in common with.

Historical performance on

comparable work: This is, of course, a form of evidence that is heavily relied on in hiring processes, even though it is often hard to establish just how comparable the work was, and very hard to establish the candidate's actual performance.

Many people who work for big organizations have done impressive sounding things, but they were just small cogs in a big machine, and success was often more attributable to someone else or to the collective power of the whole organization.

However, when performance is objectively measurable and the work is comparable this is an excellent form of evidence. It is the obvious way to select players for a professional sports team, for example.

Nobody would suggest that Roger Federer should attend a try-out session for joining a tennis team, and would it

really be necessary for Dwayne Johnson (the Rock) to audition for an action movie?

Indirectly relevant tests: For most jobs, asking a candidate to take an IQ test, a numeracy test, or a spelling test are examples of directly testing indirectly relevant characteristics of the candidate.

Although IQ tests, properly administered and interpreted, do have some correlation with many valuable qualities in a person, the scores also correlate very highly with how much practice a person has had. If you want to join MENSAs (the high IQ society) you probably can, if you do enough tests of the type they use as their entry test.

Having said that, recruiters sometimes overvalue directly relevant past experience and undervalue raw intellectual horsepower. Differences in learning speed and reasoning ability can be so large that the advantage of some experience can be obliterated within days.

Historical performance on different

work: Most of a candidate's past work experience is not in comparable work. Even quite small differences between what they have done in the past and what the recruiter now wants can be important.

For example, you might think that being a professional cricketer is about being good at one job: playing cricket. However, England's national team for test cricket is strikingly different from the national teams for one day internationals and for T20 games. The shorter matches encourage a different style of batting and bowling, and that is enough to make a big difference to who gets selected.

Candidates and recruiters play a game of trying to find similarities between jobs. Working at a counter in a bank is the

same as working a till in a supermarket, collecting money for charity is the same as selling insurance, and so on, once you find a category broad enough to contain both.

Factors only statistically related to performance: These are factors that relate to likely job performance in future, but not directly.

Consider the example of obesity. It would be nice to think that the cruel stereotype of a stupid fat person is pure fantasy, but sadly it is not. The statistical link between IQ scores and Body Mass Index (BMI) is weak – certainly not as strong as the link to parental BMI – but it has been found by more than one study (e.g. Chandola et al 2006, Halkjær et al 2003). Overall, the statistical link is that average BMI reduces with increased IQ.

This means that, if you consider a randomly selected person who is morbidly obese, then they are probably of around average IQ (because most people are) but somewhat more likely to be of very low IQ than very high IQ.

It is not desirable to choose people for intellectual jobs based on their BMI, but this is because there are much more reliable and fairer factors to consider, not because BMI is irrelevant.

A similar analysis might be done for body type, country of origin, achievements of parents, religion, and personality test scores.

Irrelevant factors: It is hard to think of factors with no statistical relationship to future job performance, but a good case could be made for the following:

- The candidate went to the same school as the interviewer, or is from the same town, or likes the same music, or has a friend they know.

- The candidate is attractive looking, when the job does not require that (e.g. computer programming).
- The candidate is good at job interviews.
- The candidate was gushingly enthusiastic about the employer.
- The candidate's parents are wealthy, or poor.

I suspect that factors like these are used often, covered up with something like 'she was a better fit for us.'

I hope you agreed that as the evidence went from directly relevant through to not relevant at all it felt increasingly wrong to use it.

A less obvious point is that, if you have directly relevant evidence, then weaker statistical evidence may turn into irrelevant evidence. This is a statistical effect.

For example, imagine you are choosing people for a job that requires great physical strength. Before considering other evidence, the sex of candidates would be statistically related to their strength. You would expect men to be, typically, stronger than women.

However, if you give an appropriate strength test to all candidates then knowing if they are male or female now provides no new information. If you have two candidates who tested as equally strong but one was a man and the other a woman you would not conclude that the man was probably stronger. Sex has lost its statistical relevance.

From the example of hiring, the conclusions are that we should focus on the more directly relevant evidence and ignore irrelevant factors (including those that have become irrelevant due to our acquiring more direct evidence), but this will often require a deliberate effort. To

do otherwise is, again, unfair and inefficient.

Disadvantages

How should our use of encouragement respond to disadvantages such as medical or genetic disadvantages, or disadvantages of upbringing?

Imagine that you own and run a small, office-based business with five employees working for you. One of them, Jenny, joined a couple of weeks ago and already you have noticed that she often arrives late, takes longer than the correct amount of time at lunch, and leaves early at the end of the working day. She seems to spend a lot of the last half hour of the day getting ready to leave rather than actually working. You have sometimes noticed her making personal telephone calls from her desk during work time. Worse still, she does not do as much work as others in the office and takes a long time to do simple tasks.

With just this in mind you would probably say that she should be encouraged to be more diligent i.e. to be punctual and work hard. You would be more likely to give her messages of encouragement stressing the importance of working hard and being punctual. You would be less likely to give her a new role that required diligence. You would be less likely to pay her a high performance bonus.

Also, you probably would not be thinking of ways to make the job easier for her, such as offering shorter hours, giving her less to do, or giving her a more private work area so that she can conduct her personal calls with more privacy.

But would you change your approach to encouragement and to adapting the job if you knew any of the following circumstances? Consider each one separately and take your own position

rather than trying to pick the legally correct action in your country:

- Jenny has Attention Deficit Disorder, a medical condition that makes it hard for her to focus on one task for a long time and leaves her easily distracted by other things.
- Jenny spends her evenings and half the night playing online computer games, drinking wine, and smoking dope. Her home is untidy and unhygienic, with crusts of take-away pizza on the floor.
- Jenny looks after her sick mother, sharing this duty with her unreliable brother.
- Jenny drinks alcohol daily in large amounts and is frequently hung over.
- Jenny is studying for a degree with the Open University, which means she has tough assignments to do most of the time and often has to work long into the evening to complete them.
- Jenny is a computer hacker who obsessively explores the internet trying to break into computer systems. She gets a kick out of getting in, and often increases her fun by planting viruses, stealing data, and doing other mischief. This is time-consuming, tiring work and sometimes she does it through the night, using a bucket instead of going to the toilet.
- Jenny is three months pregnant, a condition she did not mention when you interviewed her for the job.
- Jenny's upbringing has been chaotic, with no good role models. Her father left her mother when Jenny was a baby and her mother has psychological problems and a criminal record.

These are tricky scenarios and you probably struggled to decide what you would do in at least some of them. However, you might have noticed that your approach to *encouragement*

changed little. Because of her lack of diligence in her work, you probably still thought it reasonable to stress the importance of diligence at work and were less inclined to move her to a more responsible role or pay her a bonus.

Even in the most extenuating circumstances you would still have to justify a high performance bonus to your other employees.

In contrast, you probably thought it more reasonable to offer to adapt her job in the extenuating circumstances (though perhaps with a change to pay).

Also, in some cases you perhaps thought your most important reaction would be to sack Jenny, which is not a form of encouragement. Similarly, you might have thought it more appropriate in some circumstances than others to tell her she is a lazy person, to try to make her feel guilty about her behaviour, or to shame her in some way. None of these is encouragement, though you might think it will help to motivate her to do better.

The key point is that *encouragement* (the topic of this article) is broadly appropriate and less influenced by circumstances, extenuating or otherwise.

The issue of adapting the job is one where there are big differences in views between people.

The left leaning, liberal/socialist view is something like this:

- Almost all our characteristics and behaviours are outside our control.
- Often a person's disadvantages are the result of bad behaviour by someone else.
- People need to be protected from the consequences of being who they are and acting the way they do because otherwise they will suffer harm.

- Given the chance, people will behave well regardless of rewards and punishments.
- Therefore, we should do anything needed to allow everyone to do what they want to do and be equally rewarded for it.

The right leaning, conservative view is something like this:

- Many of our characteristics and behaviours are under our control and, even when they are not, they may still respond to rewards and punishments.
- People need to experience the consequences of their behaviours to motivate improvement in those behaviours.
- Society should make no special allowances to help people who are disadvantaged, in any way. Even if there is no prospect of motivating improvement, it is inefficient to make special efforts for some people.

To make the left-leaning position seem more reasonable, consider this imaginary situation.

Imagine a person fascinated by fruit picking and fruit generally, with huge knowledge of fruit and ripening processes. He has physical strength and stamina. He is attentive to details and can sustain concentration for long periods while working quickly with his hands.

Unfortunately, he is also red-green colour blind, which makes identifying ripe fruit of many kinds very difficult.

Does this exclude him from being a fruit picker professionally? This is a genetic disability directly relevant to the job of picking fruit.

Imagine there is a simple adaptation in the form of inexpensive, colour filtering glasses. This adaptation means he can be an excellent fruit picker with relatively little expense.

In the UK it would be for his employer to provide the glasses but in other countries where this does not happen the fruit lover can still buy some himself (and maybe set the expense against his income for tax purposes).

This example makes adapting the job seem entirely reasonable. The person is a great employee in every other way and the adaptation is so cheap and easy to implement that we hardly care who pays for it.

In contrast, if a quadriplegic person wants to be an acrobat then the adaptations to the job of being an acrobat are either impossible or would require the sort of technology only seen in movies at the time of writing (e.g. Robocop, Iron Man, Avatar, The Matrix).

Meeting the aspirations of the person in this situation is so hard it is an unreasonable use of society's resources. The same resources could instead be used to help many more people who are suffering to the same extent but have problems that are easier to solve.

In between these two extremes lie many difficult and controversial choices.

Learning and thinking problems illustrate controversy over what is to be adapted for and what is not.

For example, a persistent difficulty in learning to read and write is called dyslexia and is a recognized disability. It is considered by most to be a medical problem, not just a matter of not having got the knack of reading. Although there are some reasons for thinking that this medical diagnosis may be wrong, at least in some cases, many people now benefit from special allowances and react angrily when these are threatened.

In contrast, dyscalculia (struggles with arithmetic) does not have the same recognition, and dysrationalia (inability to

think rationally) is even further from that recognition.

(I am not arguing that all these should or should not be recognized as disabilities. I am just highlighting our different classification of superficially similar disadvantages.)

Yet, even though dyslexia is generally seen as a medical disadvantage, a good way to help someone with dyslexia improve their reading is to give them intensive reading lessons with individual attention, based on detailed analysis of their specific problems. This is also the most effective approach for people who are struggling to read but are not considered dyslexic.

In short, making an effort using effective methods is the appropriate response to reading difficulties regardless of whether there is a diagnosis or not.

Encouragement of that effort is appropriate whether or not dyslexia has been diagnosed. Someone who is struggling to learn to read probably will need more encouragement than others in order to keep going despite the difficulty and slow progress.

Whether or not there is a medical diagnosis is relevant in other ways, however. If you were someone who had struggled with learning to read, which explanation of your struggle would you wish to be true?

- I am generally stupid.
- I am not generally stupid but I have a medical brain defect that makes it very hard for me to learn to read.
- I am not generally stupid but reading is a very complex skill and I have not yet found the knack of learning it.

This illustrates how much simpler encouragement is compared to adaptation. The same is true for decisions about compensation and redistribution.

Here is another illustration of the generality of encouragement. Imagine a man who is morbidly obese. Larger bodies require more calories to sustain them, so staying obese requires continued over-eating combined with low activity. In the past we might have said that he is greedy and lazy, but today it is recognized that genetic differences affect how different bodies react physiologically to over-eating and also affect the intensity of feelings of hunger and the ability to exercise self-control.

The morbidly obese person we are imagining is one of those people with genetic disadvantages that predispose him to obesity. Consequently, he probably needs *more* encouragement than others to eat healthily and be active. This will be mostly in the form of encouraging messages. Whether we think his obesity is his fault or not, those encouraging messages combined with some practical support are likely to help to some extent.

Religion and rationality

The main religions are based on belief in sacred texts. Belief like this, without further tangible evidence, is often presented as noble.

In principle this is irrational, but a closer look is required because, for some followers of religions, the irrationality is very limited. If they are high on capability, ethics, and diligence then slight irrationality may not be important in practice.

Followers of the major religions tend to take a variety of approaches to interpreting their holy books. At one end lie the fundamentalists who take their book as being literally true. Fundamentalists may be happy to believe that the earth was created quite recently and in just a few days, a person can fly

to heaven on a winged horse, and grasshoppers have four legs.

At the other end are the modern believers who pay more attention to discoveries about the natural world and interpret their holy books in a less literal way. For them the mechanisms uncovered by science are explanations of how their god works his miracles.

The religious person may also be highly rational in other spheres of life, with elements of religion being the only exceptions.

Religion and ethics

Perhaps a more difficult issue is the connection between religion and ethics. It is not safe to assume that a religious person is more ethical.

First, at least some followers of some religions favour other followers and may be negative towards non-believers, or believers in another religion. Many lives have been lost over the centuries for this reason and it is hard to make a career in American politics if you are an atheist. This is not conducive to cooperation outside the religious group and cooperation is one of the key elements of ethical behaviour.

Second, some followers of some religions favour or disapprove of people on grounds that should not be directly important, such as their sex or sexuality.

Third, ethical behaviour is not purely a matter of arbitrary social choices and some people within some religions have promoted behaviour that is not ethical. For example, religions sometimes promote themselves by war. Most major religions have had a phase of attempting expansion through armed conquest. This is happening today in some parts of the world.

As with rationality, there are wide variations between individuals and between religions. A closer look is required. We cannot safely infer from a person's religious affiliation whether they carry out or endorse unethical behaviours. What kinds of behaviours might those be?

One group of unethical behaviours that will be a concern to many are those that promote hatred on the basis of religion (or lack of it) and could increase the likelihood of violence against others. Here are some things that a person might do in the name of their particular interpretation of a religion that could have those effects:

- Promote spreading the religion by armed conquest of land and people.
- Accentuate a listener's feelings of unhappiness and offer someone to blame e.g. their school, employer, peers, society, and especially non-believers. (This might be done using historical events and contrasts between rich and poor. This may convert a person's feelings of sadness or failure into evidence of discrimination / oppression / persecution.)
- Distribute literature, presented as authoritative, that advocates serious acts of physical violence (e.g. killing, mutilation, flogging) that are against the nation's laws, through direct instructions and stories in which role models (e.g. a god, the religion's founder) carry out or order those acts.
- Block empathy and natural reluctance to harm others by portraying them as immoral, less worthy, less human, as guilty perpetrators, part of a guilty group, and so a dangerous threat.
- Promote violence as a service to others, such as a god, fellow believers, a race, and/or the listener's family (even if they don't understand).

- Make targets easy to identify by promoting a visible sign of belonging to the religion, such as particular clothing or facial hair. For example, a religion might require adult male followers to wear a beard, which makes any male without one a non-believer and hence a dangerous enemy. This is not in itself incendiary but is an important element for a killing rampage.
- Reduce believers' fears for their own lives, by promises of divine protection, or of rewards in an afterlife or via reincarnation.

Another group of unethical behaviours that will worry many are those that promote a religion using tactics that seem unfair or exploitative. The ethical issues are less clear here but, in the case of a small, recently established, and plainly exploitative cult, I suspect the following tactics would seem unfair to most people:

- Promoting the religion by targeting people who are emotionally vulnerable or needy, offering them practical and emotional support with evangelism.
- Making receipt of that practical or emotional support explicitly dependent on displays of belief in the religion.
- Offering high quality schooling but with evangelism included, requiring displays of belief from students and/or their families. This may be particularly effective in areas where other schools are poor.
- Raising children within the religion, telling them the beliefs of the religion as if they are facts, offering no alternatives, shielding children from other information, showing or telling them that they will not be loved or cared for if they fail to believe or if they leave the religion, and/or telling them that if they fail to believe then they will be punished by a powerful

supernatural being during their lives or after death.

- Punishing dissent and defection from the religion.
- Promoting the religion by urging followers to have large families or by forbidding family planning.
- Promoting the spread of the religion by urging followers to migrate to new territory and establish colonies.

In the worst case, a particular interpretation of a religion and the behaviour of its promoters might include all the dangerous elements listed above⁵.

In the best case a religion might include the opposite of these elements, such as restrictions on evangelism, promotion of satisfaction and forgiveness, heightened empathy, strict rejection of violence, and high value placed on current lives.

Western Europe at present is grappling with the issues raised by large-scale immigration from a number of less developed countries. In addition to concerns about the sheer scale of immigration and the practical problems of accommodating the newcomers, there are concerns about the impact on the culture of European countries.

Within the countries from which most of the new immigrants are coming there are some people who are extremely hostile to European countries on religious grounds. Some others are less hostile but still regard the moral standards of Western Europe as inferior to their own, while at the same time being accustomed to

⁵ But not all elements are needed for deadly outcomes. The Peoples Temple of the Disciples of Christ was a self-styled religious organization founded in 1955 by Jim Jones. It mixed ideas from Christianity and Communism, with a strong emphasis on racial equality. A mass murder and suicide event ordered by Jones in 1978 killed 918 people including children. Most were not enemies of the group, but its loyal members.

different laws and holding views that conflict with European views on equality.

These issues are not new and not restricted to Europe. A study of the attitudes of Russian immigrants to the USA published in 1996 (Goldenberg and Saxe 1996) reported that, in interviews, the immigrants were, *on average*, 'more pro-abortion, anti-homosexual, and anti-Black' than US citizens as a whole. The study also looked at how those attitudes changed after time living in the USA and how this was linked to social assimilation and conformity.

If a European country wishes to be selective in admitting immigrants, how could it do so fairly and effectively? Selecting on the basis of nationality, country of origin, or religion is too indirectly relevant. Selecting purely for economic impact would fail to address concerns about social impacts. Very simple questions about beliefs or factual questions about government bodies and history will not detect people with potentially dangerous intentions or beliefs.

Despite the difficulties, perhaps a more informative test of ethics could be devised using questions like these:

- Questions about laws that are particularly different from those of the immigrant's home country.
- Questions where more than one ethical issue is involved, perhaps with one obvious issue and another less so.
- Perception tests where a short video is shown and the test taker must quickly press a button whenever something unethical happens. (This would be like the hazard perception test used for driving in the UK.)
- Questions where the task is to identify something that is missing rather than react to something that is wrong.

- Questions where the task is to spot opportunities rather than denial of them, and those opportunities are not usually available in the immigrant's country of origin.
- Questions where the time taken to answer is used to infer attitudes that may be unconscious (which has been done many times by psychologists).

This is not saying that such a test should be introduced, or laying down specific ethical questions, still less suggesting a pass mark. I'm just pointing out that a directly relevant test of ethics might be devised that would address some of the concerns about the cultural impact of immigration and avoid overly broad, statistical approaches to vetting.

As with motor insurance pricing, there are alternatives.

Unfair intellectual discrimination

The 'protected characteristics' listed in the Equality Act are not the only characteristics of a person that can be the basis of unfair discrimination.

A form of unfair discrimination with no direct protection at present occurs where a person has rationally reached correct conclusions that conflict with current received wisdom. What should happen is that the conclusions, evidence, and rationale, once explained, should quickly gain attention and agreement. Others should jump in and help develop the implications of the new invention or discovery further. Practical changes and changes to what is taught should follow swiftly.

What actually happens, too often, is that many of those who are interested in the topic benefit from the incorrect conventional wisdom. They have written books espousing it. They have argued for it in public. Their reputations are based on it. Their companies sell products and

services based on it. They do not want somebody to show they have been wrong and threaten their livelihood.

So, instead of seizing the opportunity to move forward they take every opportunity to crush the threat. This is unfair intellectual discrimination.

Well established examples of this kind of unfair discrimination include the reaction to Charles Darwin's proposal that species evolve through a process of natural selection and the reaction to Bayesianism during the 20th century.

A tactic sometimes used to protect the status quo from genuine progress is to portray the new thinking as an opinion (not the result of careful thought, evidence, experiments, etc) and to appeal for tolerance of all opinions, which are to be seen as equals. This means groups can vote on the truth and the dominant incumbents keep things the same.

What seems superficially fair is not fair at all. The truth is not a matter for negotiation or voting.

Encouraging CRED indirectly fights unfair intellectual discrimination. The effect is indirect because encouraging CRED does not favour any particular position or conclusion. It merely favours rational ways of reaching conclusions and ethical (fair) discussions.

Performance rewards

Probably the best way to encourage employees in an organization is to do it daily, personally, individually, and in many small ways. Reminding people of things at the right time is often more important than rewards.

However, for most large modern organizations there is an annual cycle of 'performance appraisal' that also helps decide pay, including some kind of performance related bonus. My personal

experience of this process is that it makes most people unhappy for a few weeks each year and perceived unfairness is a major driver of their unhappiness.

A typical approach to this for large organizations with Human Resources departments is to make employees agree performance targets with their bosses at the start of a period, and then compare actual performance at the end of the period with those targets. The more targets you meet the better your judged performance.

This is supposed to feel fairer because it provides a mechanism to adjust for different circumstances between employees. For example, suppose two sales representatives sell the same range of products but in different regions, and one region is richer than the other so that one lucky representative can easily sell more than the other. By setting higher targets for employees with easier circumstances such differences can be allowed for. That's the theory.

One problem with this is that actual circumstances often differ from those anticipated when the targets were agreed. It is better to take into account the actual circumstances experienced rather than those anticipated.

Another problem is that, very often, nobody really knows what difference circumstances would make, even if they knew those circumstances in advance. Then there's the problem of judging quality as well as quantity, and the problem of other parts of the job not directly reflected in the main performance measures, such as teamwork and ethics.

Conversations about targets and achievement become negotiations. Having leverage or being favoured by your boss and liked by others become more important than performing well. No amount of bureaucracy can stop this and

every part of a complex process becomes another battleground.

Through these bruising discussions it is common to feel badly treated. Instead of promoting fairness, adjustment using targets ends up creating unfairness and unhappiness.

I personally favour giving up on adjustment for deciding performance pay. The system I prefer is the one experienced by every self-employed person, where your 'bonus' is directly related to the economic impact of your work, regardless of your effort and skill. In a larger organization this means that the sales representatives with lucrative territories *will* be paid more, but at least the reason is obvious and far fewer judgements are involved. Perhaps they get a small percentage of the profit on what they sell, with judgements required only in working out the profit numbers.

This does not mean that promotion (and allocation of sales territories) should also be based simply on the economic impact of what workers have been doing. If that rule was used then a mediocre sales representative with the best territory would rarely be displaced by a better representative.

Allocation of roles should be based on the economic impact *predicted* for workers in different roles. That is not easy and involves looking at past circumstances, results, behaviours, effort, and so on.

Conclusion

Encouragement is a far reaching and complex matter that blurs into others. We use it both to influence the behaviours of others and to influence who we spend time with and work with.

The qualities we choose to encourage should, ideally, be ones that we desire

and that respond positively to encouragement.

My personal preference is to encourage people for being capable, rational, ethical, and diligent.

The methods used to direct encouragement should be fair, and that usually means using information that is directly relevant or statistically relevant with overwhelming numbers, rather than relying on factors that have only a mild statistical link with the qualities of interest.

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