

Factfulness

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[Notes Taken by Dr. Chuck Dziuban]

Chapter One: The Gap Instinct

- The majority of people live neither in low-income countries nor in high-income countries, but in middle-income countries. This category doesn't exist in the divided mind set, but in reality it definitely exists.
- **Factfulness is...recognizing when a story talks about a gap**, and remembering that this paints a picture of two separate groups, with a gap in between. This reality is often not polarized at all. Usually the majority is right there in the middle, where the gap is supposed to be. To control the gap instinct, **look for the majority**.
- **Beware comparisons of averages.** If you could check the spreads you would probably find they overlap. There is probably no gap at all.
- **Beware comparisons of extremes.** In all groups, of countries or people, there are some at the top and some at the bottom. The difference is sometimes extremely unfair. But even then the majority is usually somewhere at the bottom, right where the gap is supposed to be.
- **The view from up here.** Remember, looking down from above distorts the view. Everything else looks equally short, but it's not.

Chapter Two: The Negativity Instinct

- Beyond living memory, for some reason we avoid reminding ourselves and our children about the miseries and brutalities of the past. The truth is to be found in ancient graveyards and burial sites, where archaeologists have to get used to discovering that a large proportion of all the remains they dig up are those of children. Most will have been killed by starvation or disgusting

diseases, but many child skeletons bear the marks of physical violence. Hunter-gatherer societies often had murder rates above 10 percent and children were not spared. In today's graveyards, child graves are rare.

➤ When in the past whole species or ecosystems were destroyed, no one realized or even cared. Alongside all the other improvements, our surveillance of suffering has improved tremendously. This improved reporting is itself a sign of human progress, but it creates the impression of the exact opposite.

○ **Factfulness is...recognizing when we get negative news**, and remembering what information about bad events is much more likely to reach us. When things are getting better we often don't hear about them. This gives us systematically too-negative impression of the world around us, which is very stressful.

To control the negativity instinct, **expect bad news**.

• **Better and Bad.** Practice Distinguishing between a level (e.g., bad) and a direction of change (e.g., better). Convince yourself that things can be both better and bad.

• **Good things is not news.** Good news is almost never reported. So news is almost always bad. When you see bad news, ask whether equally positive news would have reached you.

• **Gradual improvements is not news.** When a trend is gradually improving, with periodic dips, you are more likely to notice the dips than the overall improvement.

- **More news does not equal more suffering.** More bad news is sometimes due to better surveillance of suffering, not a worsening world.
- **Beware of rosy pasts.** People often glorify their early experiences, and nations often glorify their histories.

Chapter Three: The Straight Line Instinct

- Parents in extreme poverty need many children for the reasons I set out earlier: for child labor but also to have extra children in case some children die. It is the countries with the highest child mortality rates, like Somalia, Chad, Mali, and Niger, where women have the most babies: between five and eight. Once parents see children survive, once the children are no longer needed for child labor, and once the women are educated and have information about and access to contraceptives, across cultures and religions both the men and the women instead start dreaming of having fewer, well-educated children.
- “Saving poor children *just* increases the population” sounds correct, but the opposite is true. Delaying the escape from extreme poverty *just* increases the population. Every generation kept in extreme poverty will produce an even larger next generation. The only known proven method for curbing population growth is to eradicate extreme poverty and give people better lives, including education and contraceptives. Across the world, parents have chosen for themselves to have fewer children. This transformation has happened across the world but it has never happened without lowering child mortality.

- **Factfulness is...recognizing the assumption that a line will just continue straight**, and remembering that such lines are rare in reality.

To control the straight line instinct, **remember that curves will come in different shapes.**

- Don't assume straight lines. Many trends do not follow straight lines but are S-bends, slides, humps, or doubling lines. No child ever kept up the rate of growth it achieved in its first six months, and no parents would expect it to.

Chapter Four: The Fear Instinct

- Here are a couple of headlines that won't get past a newspaper editor, because they are unlikely to get past our own filters: "MALARIA CONTINUES TO GRADUALLY INCLINE." "METEOROLOGISTS CORRECTLY PREDICTED YESTERDAY THAT THERE WOULD BE MILD WEATHER IN LODNON TODAY." Here are some topics that easily get through our filters: earthquakes, war, refugees, disease, fire, floods, shark attacks, terror attacks. These unusual events are more newsworthy than everyday ones. And the usual stories we are consistently shown by the media paint pictures in our heads. If we are not extremely careful, we come to believe that the unusual is usual: that this is what the world looks like.
- For the first time in world history, data exists for almost every aspect of global development. And yet, because of our dramatic instincts and the way the media must tap into them to grab our attention, we continue to have an overdramatic worldview. Of all our dramatic instincts, it seems to be the fear instinct that most strongly influences what information gets selected by news producers and presented to us consumers.

- Yet here's the paradox: the image of a dangerous world has never been broadcast more effectively than it is now, while the world has never been less violent and more safe.

- Fears that once helped keep our ancestors alive, today help keep journalists employed. It isn't the journalists' fault and we shouldn't expect them to change. It isn't driven by "media logic" among the producers so much as by "attention logic" in the heads of the consumers. If we look at the facts behind the headlines, we can see how the fear instinct systematically distorts what we see of the world.

- In fact, the number of deaths from acts of nature has dropped far below half. It is now just 25 percent of what it was 100 years ago.

- Back in the 1930's flying was really dangerous and passengers were scared away by the many incidents. Flight authorities across the world had understood the potential of commercial air traffic, but they also realized flying had to become safer before most people would dare to try it. In 1944 they all met in Chicago to agree on common rules and signed a contract with a very important Annex 13: a common form for incident reports, which they agreed to share, so they could all learn from each other's mistakes. Since then, every crash or incident involving a commercial passenger airplane has been investigated and reported; risk factors have been systematically identified; and improved safety procedures have been adopted, worldwide. Wow! I'd say the Chicago Convention is one of humanity's most impressive collaborations ever. It's amazing how well people can work together when they share the same fears. The fear instinct is so strong that it can make people collaborate across the world, to make the greatest progress. It's so strong it can also remove 40 million noncrashing aircraft from our field of sight

each year. Just like it can erase 330,000 child deaths from diarrhea from our TV screens. Just like that.

- In 1986 there were 64,000 nuclear warheads in the world; today there are 15,000. So the fear instinct can sure help to remove terrible things from the world. On other occasions, it runs out of control, distorts our risk assessment, and causes terrible harm.
- A very conservative estimate would give us a US figure of roughly 7,500 deaths a year. In the United States, the risk that your loved one will be killed by a drunk person is nearly 50 times higher than the risk he or she will be killed by a terrorist.
- Because “frightening” and “dangerous” are two different things. Something frightening poses a perceived risk. Something dangerous poses a real risk. Paying too much attention to what is frightening rather than what is dangerous—that is, paying too much attention to fear—creates a tragic drainage of energy in the wrong directions. It makes a terrified junior doctor think about nuclear war when he should be treating hypothermia, and it makes whole populations focus on earthquakes and crashing planes and invisible substances when millions are dying from diarrhea and seafloors are becoming underwater deserts. I would like my fear to be focused on the mega dangers of today, and not the dangers from our evolutionary past.
- **Fearfulness is...recognizing when frightening things get our attention**, and remembering that these are not necessarily the most risky. Our natural fears of violence, captivity, and contamination make us systematically overestimate these risks,
To control the fear instinct, **calculate the risks.**
- **The Scary World: fear vs reality.** The world seems scarier than it is because what you hear about it has been selected—by your own attention filter or by the media—precisely because it is scary.

- **Risk=danger x exposure.** The risk something poses to you depends on not how scared it makes you feel, but on a combination of two things. How dangerous is it? And how much are you exposed to it?
- **Get calm before you carry on.** When you are afraid, you see the world differently. Make as few decisions as possible until the panic has subsided.

Chapter Five: The Size Instinct

- The world cannot be understood without numbers. And it cannot be understood with numbers alone.
- But almost all the increased child survival is achieved through preventative measures outside hospitals by local nurses, midwives, and well-educated parents. Especially mothers: the data shows that half the increase in child survival in the world happens because the mothers can read and write.
- So if you are investing money to improve health on Level 1 or 2, you should put it into primary schools, nurse education, and vaccinations. Big impressive-looking hospitals can wait.
- The most important thing you can do to avoid misjudging something's importance is to avoid lonely numbers. Never, ever leave a number all by itself. Never believe that one number on its own can be meaningful. If you are offered one number, always ask for at least one more. Something to compare it with.
- Be especially careful about big numbers. It is a strange thing, but numbers over a certain size, when they are not compared with anything else, always look big. And how can something big not be important?

- For example, here's a list of the world's energy sources, in alphabetical order: biofuels, coal, gas, geothermal, hydro, nuclear, oil, solar, wind. Presented like that, they all seem equally important. If we instead sort them according to how many units of energy they generate for humanity, three outnumber the rest, as this graph shows.
- **Factfulness is...recognizing when a lonely number seems impressive** (small or large), and remembering that you could get the opposite impression if it were compared with or divided by some other relevant number.

To control the size instinct, **get things in proportion.**

- **Compare.** Big numbers always look big. Simple numbers on their own are misleading and should make you suspicious. Always look for comparisons. Ideally, divide by something.
- **80/20.** Have you gotten a long list? Look for the few largest items and deal with those first. These are quite likely more important than all the others put together.
- **Divide.** Amounts and rates can tell very different stories. Rates are more meaningful, especially when comparing between different-sized groups. In particular, look for rates per person when comparing between countries or regions.

Chapter Six: The Generalization Instinct

- Everyone automatically categorizes and generalizes all the time. Unconsciously. It is not a question of being prejudiced or enlightened. Categories are absolutely necessary for us to function. They give structure to our thoughts. Imagine if we saw every item and every scenario as truly unique—we would not even have a language to describe the world around us.
- When visiting reality in other countries, and not just the back-packer cafes, you realize that generalizing from what is normal in your home environment can be useless or even dangerous.

- **Factfulness is...recognizing when a category is being used in an explanation**, and remembering that categories can be misleading. We can't stop generalization and we shouldn't even try. What we should try to avoid is generalizing incorrectly.
- **Look for differences *within* groups.** Especially when the groups are large, look for ways to split them into smaller, more precise categories. **And...**
- **Look for similarities *across* groups.** If you find striking similarities between different groups, consider, whether your categories are relevant. **But also...**
- **Look for *differences* across groups.** Do not assume that what applies for one group (e.g., you and other people living on Level 4 or unconscious soldiers) applies for one another (e.g., people not living on Level 4 or sleeping babies).
- **Beware of "the majority."** The majority just means more than half. Ask whether it means 51 percent, 99 percent, or something in between.
- **Beware of vivid examples.** Vivid images are easier to recall but they might be the exception rather than the rule.
- **Assume people are not idiots.** When something looks strange, be curious and humble, and think, in what way is this a smart solution?

- Chapter Seven: The Destiny Instinct

- The destiny instinct is the idea that innate characteristics determine the destinies of people, countries, religions, or cultures. It's the idea that things are as they are for ineluctable, inescapable reasons: they have always been this way and will never change. This instinct makes us believe that our false generalizations from chapter 6, or the tempting gaps from chapter 1, are not only true, but fated: unchanging and unchangeable.

- Societies and cultures are in constant movement. Even changes that seem small and slow add up over time: 1 percent growth each year seems slow but it adds up doubling in 70 years; the 2 percent growth each year means doubling in 35 years; 3 percent growth each year means doubling in 24 years.
- It's relaxing to think that knowledge has no sell-by-date: that once you have learned something, it stays fresh forever and you never have to learn it again.
- **Factfulness is...recognizing that many things (including people, countries, religions, and cultures) appear to be constant just because the change is happening slowly,** and remembering that even small, slow changes gradually add up to big changes.
To control the destiny instinct, **remember slow change is still change.**
- **Keep track of gradual improvements.** A small change every year can translate to a huge change over decades.
- **Update your knowledge.** Some knowledge goes out of date quickly. Technology, countries, societies, cultures, and religions are constantly changing.
- **Talk to grandpa.** If you want to be reminded of how values have changed, think about your grandparent's values and how they differ from yours.
- **Collect examples of cultural change.** Challenge the idea that today's culture must also have been yesterday's, and will also be tomorrow's.

Chapter Eight: The Single Perspective Instinct

- But in fact, on levels 2,3, and 4, where 6 billion people live, girls are going to school as much as, or more than, boys. This is something amazing! It is something that activists for women's education should know and celebrate.

- I strongly recommend visiting the Red List, where you can access the status of all endangered species in the world, as updated by a global community of high-quality researchers who track the wild populations of different animals and collaborate to monitor the trend.
- I don't love numbers. I am a huge, *huge* fan of data, but I don't love it. It has its limits. I love data only when it helps me to understand the reality behind the numbers, i.e., people's lives. In my past research, I have needed the data to test my hypotheses, but the hypotheses themselves often emerged from talking to, listening to, and observing people. Though we absolutely need numbers to understand the world, we should not be highly skeptical about conclusions derived purely from number crunching.
- And of course some of the most valued and important aspects of human development cannot be measured in numbers at all. We can estimate suffering from disease using numbers. We can measure improvements in material living conditions using numbers. But the end goal of economic growth is individual freedom and culture, and these values are difficult to capture with numbers. The idea of measuring human progress in numbers seems completely bizarre to many people. I often agree. The numbers will never tell the full story of what life on Earth is all about.
- The world cannot be understood without numbers. But the world cannot be understood with numbers alone.
- I could tell you countless stories of the nonsense I saw in Cuba: the local moonshine, a toxic fluorescent concoction brewed inside TV tubes using water, sugar, and babies' poopy diapers to provide the yeast required for fermentation; the hotels that hadn't planned for any guests and so had no food, a problem we solved by driving to an old people's home and eating their leftovers from the standard adult food rations; my Cuban colleague who knew his children would be expelled from university if he sent a Christmas card to his cousin in Miami; the fact

that I had to explain my research methods to Fidel Castro personally to get approval. I will restrain myself and just tell you why I was there and what I discovered.

- The United States spends more than twice as much per capita on health care as other capitalist countries on level 4-around \$9,400 compared to around \$3,600-and for that money its citizens can expect lives that are three years shorter. The United States spends more per capita on health care than any other country in the world, but 39 countries have longer expectancies.
- The answer is not difficult, by the way: it is the absence of the basic public health insurance that citizens of most other countries on Level 4 take for granted. Under the current US system, rich, insured patients visit doctors more than they need, running up costs, while poor patients cannot afford even simple, inexpensive treatments and die younger than they should. Doctors spend more time that could be used to save lives and treat illness providing unnecessary, meaningless care. What a tragic waste of physician time.
- Anyone who claims that democracy is a necessity for economic growth and health improvements will risk getting contradicted by reality. It's better to argue for democracy as a goal in itself of as a superior means to other goals we like.
- **Factfulness is...recognizing that a single perspective can limit your imagination,** and remembering that it is better to look at problems from many angles to get a more accurate understanding and find practical solutions.

To control the single perspective instinct, **get a toolbox, not a hammer.**
- **Test your ideas.** Don't only collect examples that show how excellent your favorite ideas are. Have people who disagree with you test your ideas and find their weaknesses.
- **Limited Expertise.** Don't claim expertise beyond your field: be humble about what you don't know. Be aware too of the limits of the expertise of others.

- **Hammers and nails.** If you are good with a tool, you may want to use it often. If you have analyzed a problem in depth, you can end up exaggerating the importance of that problem or of your solution. Remember that no one tool is good for everything. If your favorite idea is a hammer, look for colleagues with screwdrivers, wrenches, and tape measures. Be open to ideas from other fields.
- **Numbers, but not only numbers.** The world cannot be understood without numbers, and it cannot be understood with numbers alone. Love numbers for what they tell you about real lives.
- **Beware of simple ideas and simple solutions.** History is full of visionaries who used simple utopian visions to justify terrible actions. Welcome complexity. Combine ideas. Compromise. Solve problems on a case-by-case basis.

Chapter Nine: The Blame Instinct

- The blame instinct makes us exaggerate the importance of individuals or of particular groups. This instinct to find a guilty party derails our ability to develop a true, fact-based understanding of the world: it steals our focus as we obsess about someone to blame, then blocks our learning because once we have decided who to punch in the face we stop looking for explanations elsewhere. This undermines our ability to solve the problem, or prevent it from happening again, because we are stuck with oversimplistic finger pointing, which distracts us from the more complex truth and prevents us from focusing our energy in the right places.
- The same instinct is triggered when things go well. “Claim” comes just as easily as “blame.” When something goes well. We are very quick to give the credit to an individual or a simple cause, when again it is usually more complicated.

- Most of the human-emitted CO₂ accumulated in the atmosphere was emitted over the last 50 years by countries that are now on Level 4. Canada's per capita CO₂ emissions are still twice as high as China's and eight times as India's. In fact, do you know how much of all the fossil fuel burned each year is burned by the richest billion? More than half of it. Then the second-richest billion burns half of what's left, and so on and so on, down to the poorest billion, who are responsible.
- Because the problem is that when we identify the bad guy, we are done thinking. And it's almost always more complicated than that. It's almost always about multiple interacting causes-a system. If you really want to change the world, you have to understand how it actually works and forget about punching anyone in the face.
- **Factfulness is...recognizing when a scapegoat is being used** and remembering that blaming an individual often steals the focus from other explanations and blocks our ability to prevent similar problems in the future.

To control the blame instinct, **resist finding a scapegoat.**

- **Look for causes, not villains.** When something goes wrong don't look for an individual or a group to blame. Accept that bad things can happen without anyone intending to. Instead spend your energy on understanding the multiple interacting causes, or system, that created the situation.
- **Look for systems, not heroes.** When someone claims to have caused something good, ask whether the outcome might have happened anyway, even if that individual had done nothing. Give the system some credit.

- At 8 p.m on August 21, 1981, this discovery transformed me from being a district doctor to being a researcher, and I spent the next ten years of my life investigating the interplay among economies, societies, toxins, and food.
- This attitude toward future risk is a big problem for activists who are working on long timescales. How can they wake us up? How can they galvanize us into action? Very often, it is by convincing us that an uncertain future risk is actually a sure immediate risk, that we have a historic opportunity to solve an important problem and it must be tackled now or never: that is, by triggering the urgency instinct.
- Some aspects of the future are easier to predict than others. Weather forecasts are rarely accurate more than a week into the future. Forecasting a country's economic growth and unemployment rates is also surprisingly difficult. That is because of the complexity of the systems involved. How many things do you need to predict, and how quickly do they change? By next week, there will have been billions of changes of temperature, wind speed, humidity. By next month, billions of dollars will have changed hands billions of times.
- But the future is always uncertain to some degree. And whenever we talk about the future we should be open and clear about the level of uncertainty involved. We should not pick the most dramatic estimates and show a worst-case scenario as if it were certain. People would find out! We should ideally show a mid-forecast, and also a range of alternative possibilities, from best to worst. If we have to round the numbers we should round to our own disadvantage. This protects our reputations and means we never give people a reason to stop listening.
- Since even the best economists in the world failed to predict the last crash and fail last year on year to predict the recovery from it-because the system is too complicated for accurate predictions-there is no reason to suppose that because no one is predicting a crash, it will not

happen. If we had a simpler system there might be some chance of understanding it and working out how to avoid future collapses.

- And we know that the quicker we act, the smaller the problem, because as long as people remain in extreme poverty they keep having large families and their numbers keep increasing. Providing necessities of a decent life, quickly, to the final billion is a clear, fact-based priority.
- I don't tell you not to worry. I will tell you to worry about the right things. I don't tell you to look away from the news or to ignore the activists' call to action. I tell you to ignore the noise, but keep an eye on the big global risks. I don't tell you not to be afraid. I tell you to stay coolheaded and support the global collaborations we need to reduce these risks. Control your urgency instinct. Control all your dramatic instincts. Be less stressed by the imaginary problems of an overdramatic world, and more alert to the real problems and how to solve them.
- **Fearfulness is...recognizing when a decision feels urgent** and remembering that it rarely is.
 - To control the urgency instinct, **take small steps.**
- **Take Small Steps.** When your urgency instinct is triggered, your other instincts kick in and your analysis shuts down. Ask for more time and more information. It's rarely now or never and it's rarely either/ or.
- **Insist on the data.** If something is urgent and important, it should be measured. Beware of data that is relevant but inaccurate, or accurate but irrelevant. Only relevant and accurate data is useful.
- **Beware of fortune tellers.** Any prediction about the future is uncertain. Be wary of predictions that fail to acknowledge that. Insist on a full range of scenarios, never just the best or worst case. Ask how often such predictions have been right before.

- **Be wary of drastic action.** Ask what the side effects will be. Ask how the idea has been tested. Step-by-step practical improvements, and evaluation of their impact, are less dramatic but usually more effective.

Chapter Eleven: Factfulness in Practice

- When the facts about the world that you were taught in schools and universities become out of date, you should get a letter too: “Sorry, what we taught is no longer true. Please turn in your brain for a free upgrade.”
- A single typo in your CV and you probably didn’t get the job. But if you put 1 billion people on the wrong continent you can still get hired. You can even get a promotion.
- I think it will not be long before businesses care more about the fact mistakes than they do about spelling mistakes, and will want to ensure their employees and clients are updating their worldview on a regular basis.