Chip Heath 00:00
why we're bad at numbers and how we know we're bad at numbers.

Jacob Morgan 00:02
Okay, so let me actually make it a specific question with bad numbers, and how we know. Okay, I got that one down there. Anything else specific that you want to make sure we cover?

Chip Heath 00:18
No, I think that's, that's good.

Jacob Morgan 00:20
Okay, cool. Well, unless you have any other questions, I'll do a brief intro. And we'll jump right in. Does that work for you? Perfect. All right. Sounds good. Hello, everyone. Welcome to a another episode of the future work podcast. I'm your host, Jacob Morgan. And today, my guest is chip Heath. He is a professor at the Stanford Graduate School of Business and New York Times best selling author of switch and Made to Stick. And he has a new book out called a making numbers count the art and science of communicating numbers. Chip, thank you for joining me.

Chip Heath 00:51
Thank you for having me.

Jacob Morgan 00:52
So as we were talking about before I push the record button, I had your your brother on the show. I think it was last year talking about his latest book. So now now I got the other brother on the show.

Chip Heath 01:02
Yeah, thanks for supporting the heat family.

Jacob Morgan 01:05
Yeah, yeah. Like you're your biggest evangelist now. So I'm really curious, why did you decide to write this book.

Chip Heath 01:13
So I've been frustrated for years and trying to teach that the earlier book that Dan and I wrote together Made to Stick because one of the one of the things that frustrated us at the time was we didn't have very good advice, very complete advice about how to how to deal with numbers. And so what we encourage people to do is to simplify your numbers don't use too many, because they're confusing and abstract people, people have hard time grappling with numbers. And what I wanted to do was come up with some more specific advice. And so so it really I was pushed into that one of my students, because one of my students at one point said, You look like I'm an investment banker, I can't, can't get away from numbers, how to? How do I deal with the ones that I have to talk about? And so I took that seriously and added some exercises to the class and they came to be one of my favorite parts of the

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class just set up a competition where people would try to take a number of statistic and translate it into a more usable form. And people came up with some brilliant things. Yeah.

Jacob Morgan 02:11
So did you find that this was like something you were struggling with, as you were writing some of your previous books is how to how to communicate your numbers and the data and information in a way that resonated with people.

Chip Heath 02:20
And definitely we come up with a particular translation for for a statistic and, and we'd work at it until we get satisfied, but they're running general principles that we had at the time for doing that. And that's what this book is about is general principles for taking classes and numbers and making them more likely to be interested by people that are listening more likely motivate people that are listening.

Jacob Morgan 02:44
And why do you think this is important for us to be able to do?

Chip Heath 02:49
Well, it's important because we're really bad at numbers. And let me give you a quick example of that. So billions and millions, we all know that a billion is bigger than a million. But how much bigger? Is it? So here's the thought experiment, if you counted from each second for for up to a million, how long would you be counting? The answer is 12 days. If you counted any second up to a billion, I'll only do counting. And so it's 32 years. And nobody gets that right. Not physicists, not mathematicians, not engineers, not method. This is way bigger than we expected. And, in fact, there's evidence in the psychology literature that we're really good to numbers up to numbers of like, five. So we're really solid on 1234, and five in and you can see this if you've if you've ever been a parent and reread when the kids are counting books to them, you turn the page and there are three goldfish on the page, and your brain immediately shouts three. And you don't have to count for those that nobody ever had to bring shout nine when they were nine, nine pumpkins, you know. And so it's called supervising in what supervising says is we're really good as humans at recognizing, at a glance, numbers up to about five and up to that we're in bad shape.

Jacob Morgan 04:11
So my ex, my five year old daughter is going to be very, very glad to hear this. She's gonna say, Yeah, Daddy, I only need to know how to count to five.

Chip Heath 04:21
In fact, that most cultures that they ever existed in the world would only allow her to count to five, because most cultures have had names for the numbers 1234 And five. But beyond that, it was always a generic term, like lots. So it's 12345 Lots. And, and we're more sophisticated in our culture. But essentially, when we get to billions and millions, we're all saying, well, there are lots and we don't have good sensitive. billion lots is 32 years worth of flights. Yeah, a million lots is 12 days.

Jacob Morgan 04:54

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Well, a billion certainly does sound like a lot. I want to pick a A quick step back really quick before we continue talking about your book and learning a little bit more about you, and how you got involved with some of the work that you're doing, how you got to be a professor, why you turned to writing books, can you share a little bit of your your background story and how, how your life led you to where you are now.

Chip Heath 05:20
Sure. I grew up in Texas and went to Texas a&m As an undergrad, I was an industrial engineer. And then at some point, I decided, I wanted to not be an engineer for the rest of my life that I wanted to teach. And so I looked at teaching high school and turned out would have taken me three years to get a teaching credential for high school and thought PhD in four years might be a good choice. And so I basically got a PhD at Stanford in was very involved in what has become behavioral economics. It's the psychology of decision making applied to economic context. And I spent a long time looking at that, and basically taught taught in business schools for a number of years. And at a certain point, I got excited about ideas and how they transmit and whether the right ideas went out in the marketplace of ideas. And so I started doing research on urban legends and rumors and false explicitly false ideas that survive and propagate very rapidly in the environment. And it started bugging me when it started bugging me that we get all these false ideas that are propagating effortlessly. And yet, we can't get true and useful information but don't suntan or don't don't pick up smoking habit is to junior high school kids. How do we get to turn useful information to have the properties of the things that circulate effortlessly?

Jacob Morgan 06:41
And that's, I suppose what led to the first book?

Chip Heath 06:45
Yeah, so that the main to stick in, we talked about the properties of sticky ideas of all kinds. And then our second book was about change, because we found that a lot of the people that were coming to book that sticky ideas, were trying to make an idea stick about change.

Jacob Morgan 07:04
Okay, and I suppose that brings us to where we are today. And it sounds like with each book that you've been writing, it seems like you're you're tackling something that you're that you're faced with in your life like concepts, ideas, challenges as well. Right.

Chip Heath 07:17
Exactly. Yeah, yeah. We wrote, wrote switch, because we had, we both trying to change at various points in time, and we're looking for the best hands that we could find from the Lutron change. And how do we resolve this conflict, this inner tension that we have between what we know that to be doing and what we really want to do?

Jacob Morgan 07:35
Yeah, which is, I think, something a lot of people struggle with. And so your current book on numbers, let's kind of jump back into that. And why is it you think we're so bad at numbers? Because some

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people listening to this might say, Yeah, I'm a numbers person, I'm great at numbers. But collectively, it sounds like this is something we're not really good at.

Chip Heath 07:57
Yeah, into the numbers first, and I would say, you know, you've, you've invested a lot of effort in learning to speak a language. And that language is not a natural language. Because, you know, most cultures have existed without that, that language up to the present time in we luckily, were born into a society in a culture instead of world cultures that have grappled with numbers. But our brains still weren't attuned to those things. And so when somebody says, I'm a numbers person, what that means is they've invested a lot of time and effort, learning to make those numbers work. And so what we need to do, once we do the analysis that our training is led us to do, we want to be in a position where we're gonna be able to translate that analysis and there's, there's an entire set of skills about translation that nobody ever teaches us to go along with our analytical skills.

Jacob Morgan 08:46
Interesting. So when you say an entire skill of translation, you mean like having having a number or, or information and making sense of it and telling a story behind

Chip Heath 08:56
it? Yeah, let me give you the simplest possible example. This is this is an example that comes from a group it being that run the Bing search engine for Microsoft. And what they found is that people would be beating the system for facts. So what is land area of Pakistan and its turns as 340,000 square square miles. And what they started experimenting with doing is giving people a simple perspective phrase, simple comparison, helped put that number in perspective. And so they'd say, the area Pakistan is 340,000 square miles. That's about the size of two California's and what they found is that when they when they gave comparison phrases, people were likely to remember things more in a day in six weeks from now, they followed up with some people month and a half later, and accuracy essentially doubled. And all those timescales essentially doubled even If even if the comparison phrase was a little clunky, so to California is pretty vivid picture in people's minds, at least in the States, five, Oklahoma's for US residents is not quite as intuitive. But five, Oklahoma's you did better, but twice as good as people that without any comparison phrase at all. And so what translation means is that math is math is a foreign language to us. And so we would never insert a random phrase or, or story in Japanese or German into English translation in an English speaking meeting in the United States without translating it. And yet, very often, we throw our numbers up on the graph or on the PowerPoint slide. And in we're not translating those numbers, what what the being experienced says, Is it even simple attempts at translation? go a long way.

Jacob Morgan 10:52
Yeah, and I suppose and you have a lot of great examples in the book, which we can certainly touch on in a few minutes. And I suppose this is an important topic, because numbers is a part of our everyday life for how we communicate or how we make decisions for, for everything we do both personally and professionally. And so if you can get your point across and tell a story within those numbers, that sounds like you are more likely to be able to drive change, at work and at home, and pretty much in anything that you're involved in.

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Chip Heath 11:23
Yeah, and I think I think if you think about the change problem is, is you get to understand where you're going with the change and understand the need for change. And so there's a, there's a cognitive component about that about just do I grasp the world correctly? And then there's a motivational component about that. It's like, do I want to do this? Do I think it's important? Do I think it's necessary. And what we've got in the book are tools that help, help take can extract numbers, and first make them easier to understand and then also make them more motivational?

Jacob Morgan 11:56
So let's start off with the maybe some common mistakes that maybe leaders or that we in general make. So when we're trying to communicate numbers and tell a story with data, because you know, everybody loves data, right? Everybody loves information and numbers. We feel like we use it all the time to make a case. You see it on TV all the time. It's it's an every aspect of life. Where do you see some of the big mistakes for how people communicate using numbers and data?

Chip Heath 12:27
Well, let me give you one. It turns out our brains aren't very good with fractions, percentages. And yet, we're using those fractions and percentages a lot. One of my favorite stories in the book is former CEO of NWA restaurants was recalling a time when NW restaurants were in competition with McDonald's, McDonald's had just come out with the quarter pounder. And it was making a big splash because it's the biggest burger that people had had in fast food restaurants. And so NW restaurants decided they would do it even better. And they came out with a third pound burger at the same price as the McDonald's quarter pounder. And did consumers rejoice at getting better value for their money. Now, they actually complained that they were getting ripped off. Because a third pounder, in their mind, there was a three in that number. And a third pounder three is smaller than four. And so endup is asking him to pay the same price for the four quarter pounder, as for the third quarter. And so they got it exactly wrong from what we've done. And yet, if we think about those fractions classes that we took back in elementary school, if those didn't stick with us, to allow us to understand that a third pounder is actually a better deal than a quarter pounder for the same price. Then what are we going to do when we come to more complex fractions and percentages? Yeah, so pretty fun. Let me give you give you one of my favorite examples in the book. This is my master student who took one of her or workshops in that we ran in preparing the book. And she started with the statistic that about 40% of Americans and this is pre COVID. But 40% of Americans admitted that they sometimes didn't wash their hands after using the bathroom. And that sounds kind of gross, and 40% sounds kind of large. But here's another translation of that it's more concrete. It doesn't involve the percentage. What that says two of the last five people you shook hands with didn't wash their hands after using the bathroom. And all of a sudden, when I when I've been in crowns that I've read this to side by side, the 40% versus the two out of five. There is a visceral response to the two out of five when people start reaching for the hand sanitizer immediately. And and that's just by taking an abstract percentage and turning it into a concrete example and that person.

Jacob Morgan 14:51

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No, I love it. And I'm actually still surprised that the the quarter pounder and a third third pound burger that people didn't realize that the Quarter Pounder is actually smaller than 30 pound burger and it was a, it's funny because it's not something that you would think about. And I can't imagine like the marketing executives at NW when they were thinking about this. Anybody brought that up? Like, it's just yeah, you don't think about that at all. So it's I guess that tells us like you said that we are notoriously bad at with fractions, and we need to simplify things whenever we can.

Chip Heath 15:22
Well, it also speaks to this is the big villain of communication that Dan and I found in working on our first book Made to Stick is something economists in behavioral psychologist called the curse of knowledge. And what the curse of knowledge says is that as we know, something better and better, it gets harder and harder for us to picture somebody not knowing what we know. And so if you've ever been on the other side of conversation with a doctor or lawyer talking about medicine, or the law, you've been on the other side of the curse of knowledge, yeah, and the expert cannot, cannot imagine what what you lack in your, your picture of the world. But it's not just fancy people with lots of degrees, it's asking Lemmon Euro, that, you know, that madness favorite video game, and you will be on the other side of the curse of knowledge at 11 Euro cannot fathom the depths of your ignorance about that game. And, and so, as we become as we become numbers, people through training, and we do the right analysis, what, what we've done is curse ourselves with our knowledge. So it looks, it looks very, very obvious to us what we're trying to do. Yeah, and it doesn't necessarily come across to the people. So how

Jacob Morgan 16:41
do you break that? That curse of knowledge? Because I mean, we probably all struggle with that. And, you know, there have been times where I've been frustrated as well, where I'm trying to communicate something that I feel I know very well. And it's just not landing with people, regardless of how many times I repeat it, and keep saying it and communicating it. So how do you tackle

Chip Heath 17:00
that? Yeah, it's one of the most frustrating things and, and what we've got in the book are about 20, or 30 tools for doing that. various situations. But here's a meta tool for thinking about that is, if we can, if we can get out of get out of our understanding of the situation long enough to think about how to paint a concrete picture of that to somebody else. That's gonna stand us in good stead in communicating that somebody else. So for example, one of the things that puzzled me for a while, a few months back was there is a container ship called the ever given that it blocked the Suez Canal, do you remember this? I do. Yes. World World Shipping, because there was a critical, critical artery that, and I never, I never understood the Suez Canal was quite as important as it as it is, but wasn't clear to me, in my mind how a ship a single ship could, could back up a full shipping quarter. And people talk about this ship being a quarter mile long, and I had vague knowledge of what a quarter mile is, but they still can cross that with the Suez Canal. And then finally, somebody said, you know, they ever given is longer than the Empire State Building. If you take off that thin, tiny antenna that goes on the top of the Empire State Building. And so now I'm picturing the Empire State Building, on its side, going across the Suez Canal, and I can start to see, yeah, there might be, there might be a problem there. And so that notion of going for something concrete, that's much more concrete than a mile long, are much more concrete than just

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saying there's a container ship stuck there. That moving from abstract to concrete, but painting a picture is an important tool that should stand you in good stead anytime you get an analysis.

Jacob Morgan 18:54
Yeah, no, I love that. Well, let's talk about some of the other tools that that we might be able to use. So one of the things for example, that I remember, I was taught, and I can't remember if this was in college, or where this was, but to always try to tell a story with the data. And I suppose that's very related to some of the stuff that you're talking about. So moving to this kind of concrete concept, I think makes a lot of sense. Are there any other maybe some of your favorite tools that you talked about in the book that people should be implementing?

Chip Heath 19:28
Sure. Yeah. And, and I want to, I want to lower the bar a little bit from from the people that tell us to tell stories with our data. Because when I think of the story, I think of somebody with a plot and characters and it's complex and unfolds over time, and it's turning the ever given into the Empire State Building is just a picture. It's not a story. And I think that picture is, is important in in, in most situations in more than the story but let me let me give you an example where there is is a story. And it deals with one of the most simple numbers that you can imagine seven years. And the reason this came up in our class was I given my students an exercise to try to try to push carbon fluorescent bulbs when they first came out. So they were really expensive, but they were good for the environment, they use a quarter of the electricity. And they lasted a long time in. And so I assigned my students to get across the notion that this saves, this only uses a quarter of the electricity of your standard ball. And so people set off to do that. And then I started having people report out what their group had come up with. And one group said, Well, we ignored your assignment. And they said, We ignored your assignment, because using a quarter of the electricity is fundamentally an abstract notion. And we didn't even want to try to grapple with that. But here's a more concrete notion. People hate to change bulbs, and is bulb says it's going to last for seven years. And so let's use that as the focus of the message as opposed to electricity. I thought, okay, you got me on my own on my own turf, you know, I shouldn't probably assigned you to do a quarter of the electricity when there is another concrete thing to do. But what they did is they took seven years and made it even more concrete, they said, what this means is, if you change the bulb now, and your child is learning to walk, the next time you have to change the bomb, your child is gonna be in second grade learning about gases and oxygen. And the next time they're going to be learning to drive. And all of a sudden, seven years had meaning that I had no clue about just thinking of that. And then

Jacob Morgan 21:38
oh, sorry, I was gonna say, I really like the freeze that you said. And I'm wondering if this is something that we can think about is kind of asking yourself that question, what does this mean? Because I feel like oftentimes, we're presented with data, or we have data, but we forget to ask ourselves that question of what does this actually mean? Which I think even just those, those three words, what this means, can really help change the way that we actually use data and numbers to communicate information.

Chip Heath 22:06

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Yeah, that's an excellent piece of advice. And one of the most useful pieces of advice that we talk about the book is, is a principle that some friends of mine came up with, that says, anytime you have a presentation, anytime you have a PowerPoint deck or or a memo that goes out, go through and circle all the numbers. And then search around the numbers that are circled for phrase like, what this means is, or in other words, or way of picturing this is, you know, so you look for those phrases that indicate somebody is about to translate something that's there into another form. And if you find a single number that you've circled, that doesn't have a translation, that's a sign that you either need to get rid of that number, or you need to translate it. And so your your notion of looking for the meaning, I think, is a simple version of their test. It's more straightforward. And just like, if you can't say what this means, then you're not you're not doing your duty to your listeners.

Jacob Morgan 23:03
Because, and I don't know if anybody's ever said this to you. But what if somebody comes back and says, Well, if you don't know what it means, then it's probably too complicated. Like, you know, I've heard people say that before, like, if you have to explain it, it's too complicated. Or if I can't tell what this means, just by looking at it mean, it's too complicated. Is there any truth or merit to that?

Chip Heath 23:23
I think there's certainly merit in it. A lot of times, the numbers that we use are too, too difficult to understand, they're like, we make a big case in the book for rounding numbers. And so you know, just a single a single number like 438,695, your brain has about seven plus or minus two slots of memory that you can use. And that number that I just quoted, you uses up six of them. And, and so the more you can do to simplify numbers, so instead of four and 30,000, forget my own number 65, you know, instead of the six digits when it makes it 400,000. And this is something engineers and physicists and doctors do all the time is round up, they look for a ballpark figure, they look for a quick and dirty calculation. Because what they want to do is get in the ballpark of something that has magnitude that they understand. And you can't do that when you're carrying around all these extra digits. And so it's one of the first things that you want to do this is simplifying on that basis. But when people say, give me your phrase again, how did you phrase the critique? If it's,

Jacob Morgan 24:42
oh, if people say that, if you have to explain it, then it's already too complicated. Or if I can just look at the number and already know what it means then it's it's, you know, too complicated already.

Chip Heath 24:54
Yeah, I think that may be true, and maybe a good time to simplify the number that you're using like We've just talked about with rounding. But it could also mean that you have a curse of knowledge. And you look at the number and you understand what it means. And you expect everyone else to do it. And, and that's where you're making the mistake. And so if you're using that phrase to say we need simplifier numbers, that's a good impulse. If you're using that phrase to say, we don't need to translate, because everybody understands their numbers, that's false, as false on average and spots in, in society, because we get back to the millions and billions problem. It's like, you know, without translation, those are just lots.

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Jacob Morgan 25:33
Yeah. Well, it's funny, because I know like, in the world of marketing, you know, everybody always says, instead of saying, $20, say 1999, or instead of saying it's on sale for $400, see 399 99. And it's so kind of goes like, again, and I don't know if it goes against what you're saying or not. But it's certainly like you're adding to and in some cases, three extra digits. So when instead of just saying $20, you have to say 1999?

Chip Heath 25:59
Well, and I think I think there there's a reason for that is they want to find your brain at that moment, because they want you to think this is a bargain. And if they can keep your brain occupied my thinking nines, then it's, it's, it's even more impressive, because what happens is 99 becomes 19, as opposed to 20. You know, it's one cent away from 20.

Jacob Morgan 26:21
Yes, funny, there's, it's like all these little things. But there's so much subtlety in all of it, especially with numbers and how we convey information. It's a really interesting space. Are there some other common mistakes that you find? Maybe, especially in the workplace, as far as how leaders communicate, or even how individuals communicate? When it comes to using numbers? I think we talked about fractions, we talked about making things concrete, asking, What does it mean, any other particular tools or resources that that you encourage people to think about?

Chip Heath 26:53
Yeah, there's a whole other class of tools that we haven't talked about yet. And so making things concrete make things simpler. Those are all ways of getting people to understand the numbers. But there's this other sense in which we use numbers in, in many situations where we want the number to motivate people to take an action. Yeah. And so, so our favorite, favorite example of this is Florence Nightingale. When in in while she was creating nursing on the side is a field that exists today. She was she was trailblazing statistician, she was a trailblazing statistician, who basically, she was part of a group that ended up with mortality statistics that we quote all the time about, people are more likely to die from, from this kind of cancer than that kind of cancer from stroke than from falling off a ladder is kind of mortality statistics are collected in large part because of Florence Nightingale's work with death certificates in getting people to standardize the way that they coded deaths. And in, so the data was available for people to look at later. But Florence Nightingale was trying to clean up medical practice in, in the army. And she did a calculation at one point that said that, given the standard of care in army hospitals at the time, there were 1100 deaths a year of the young men that had agreed to serve our country, that shouldn't have happened, because the hospitals in London down the street that were public hospitals, were doing that much better caring for their patients. And so military hospitals are killing off 1100 Soldiers a year, because we're not up to standards on sanitation, and best practices. And what she did with that 1100. That's shocking in of itself, but she she went further, and she dropped more emotions said that 1100 is worse than the bionic plague, the Black Death. And she went into situations where she said, you know, look, here's here's a situation where a ship sank. And we limited as a society that brave soldiers that died on that ship that saying, but there are three times the number of people that were killing in our hospitals every year, as opposed to that ship. And, in fact, we might as well line up 1100 men and shoot them at the beginning of the year. And that would be kinder, in some

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ways, because they wouldn't suffer from the sepsis that sits in waste their body given our sanitary. Now, those are brutal comparisons. But think about Florence Nightingale is position. She's She's not an upper class woman. She's a middle class woman, without formal medical returns rules. Without title, without resources. She didn't have an organization behind her backing her at that point. And she's talking to military generals in Lords of the Realm and in politicians of all kinds. And she's got to motivate people to make change. And so all those comparisons that we just talked about the emotional comparisons are taking them that has some meaning because we understand 1100 deaths is a significant number. But making it even more significant, because it's like, if we don't solve this problem, it's like we're shooting these 1100. Guys. Yeah. And and, in general, I think that's a good lesson for us is that numbers have good numbers have motivational capacity. And so, so let me give you an example. Kaiser Permanente came up with a procedure recently that would reduce sepsis deaths dramatically. And sepsis is kind of a silent killer, and it kills. It's up in the top three reasons for people to die along with cancer and stroke and heart disease. Oh, wow. Yeah, and most people don't. And so. So Kaiser Permanente developed a new procedure that would solve a lot of the problems with sepsis that we have, in fact, save 149,000 people a year. Now, again, that's a big number. But let's translate that in a way that bring more motivation to the table. So if if every hospital in the country adopted this new procedure, save 149,000 people a year, that's the equivalent of saving every woman with breast cancer. And every man is diagnosed with prostate cancer in a given year. And now all of a sudden, that sepsis work seems really, really important. Because we take two of the most actively resourced, socially motivated diseases in communities of people who have suffered from disease. And, and this is more important than either of those. Yeah. And I think that puts things in in a broader perspective.

Jacob Morgan 31:46
No, I like that a lot. And then, I mean, another like, thing that was popping into my mind is, you know, around like engagement surveys that companies do every year. Yeah. And sometimes I wonder how motivating is it to know that 90% of the people are engaged, or 95%? Or what's the difference between 90 or 95%. And, you know, we do a lot of these types of surveys internally in our companies all the time, around satisfaction around engagement, around learning around appreciation for our leaders. And it's always a number. But we never, at least I haven't seen any organizations really take a step back and go to that next step and say, what does that mean? And so I think it would also be very interesting to apply that in some of these other areas, right? So for example, like, you know, when you walk down the hall at your company, nine out of all the 10 employees that you see are in love with their jobs like that, that's obviously much more meaningful than saying 90%. And now that I'm thinking about it, I don't think we do a very good job, just in general of of adding any kind of story or context, or concreteness, or answering that what if question, like in any aspect of work that we do, so it's quite a big problem.

Chip Heath 32:57
Let's talk about the marketing equivalent of that is like marketing, people collect all kinds of demographic and psychographic data about their customers. And so suppose that you for a particular easy preparation food product, your, your typical customer is, is female, early 20s, or early 30s, with 1.5 kids in Sure, top issues are art, nutrition, and value. And so that's a bunch of demographics of the kind that you'd put onto the page and say, let's, let's make up improvement our product for this customer. But imagine that you tried to form a living, breathing human being out of those statistics, and you said, you know, typical customer is mom, or 30s mom coming home from work and grabbing your kids in

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preschool. And she's got a two year old and a four year old and a two year old every time she picks up a box to look at the nutrition information is slapping the box out of her hand and the four year old trying to rearrange the shelving across the aisle. And, and like we've all we've all been in that position, we've been parents of young kids, and just calling back some of those memories makes a big impact. And yet, what we've done is we've taken abstract psychographic, and demographic information, and just recent life into it. And that makes a big difference.

Jacob Morgan 34:23
And I like that concept of, you know, kind of another phrase, right, breathe life into it. So I think whenever we're using any kind of data or information, whether you're a leader or not, is you need to ask yourself that question. How do you breathe life into that into that number or that statistic? And what does that actually mean? Yeah, because that would probably be a very useful thing to do.

Chip Heath 34:43
One of the most profound tools that we talked about in the book, I think, is is converting things into process. And that's another way of breathing life into things into so at one point in the.com era, that the venture capital community in Silicon Valley and raised $200 billion of venture Capital has a huge amount relative to venture capital that have gone on before. In fact, it's probably as much in that five year period has been in the 25 years before in venture capital. And people were kind of thinking, you know, are we going to be able to hit traditional return rates for BC, which at the time was was 18% per year, we're gonna build to do that with our tuner billion that we've just raised collectively. And it's not clear because if you do the calculation, what that means is they would have to create $1.3 trillion in value over the next 10 years. And it sounds high. But you know, they had created Cisco, they had created eBay, they had created lots of companies that were very valuable. And, and it's kind of possible to motivate yourself to believe that maybe we could do it until a Fortune magazine writer said, let's, let's think about this for a second. eBay was the big hit of the previous area, era fundraising, and much more capital, which earned the most on eBay on $4 billion in their investment. That's not a bad day's work. But how many eBay's would it take between now and 10 years from now, to equal 18%? Gains on turn billion dollars? The answer was 365, or something like that. When he Bay, when he Bay, essentially every 10 days was the correct statistic. Until now, and 10 years from now. And as soon as you say it like that, it's just, it's just utterly impossible to believe that you're going to come up with one eBay every 10 days between now and then I mean, the modern equivalent view, one Facebook every six weeks between now and 10 years from now. Yeah, that's crazy. And so, so by breathing some life into this statistic, you you understand, you're actually in a position not to only understand, but but to be convinced in your mind that this is not going to be possible. So it's not just translation of a number, it's actually helping you think about the number in a clearer way than you would have before. Where do

Jacob Morgan 37:13
you find and I know, this might sound like a weird question. But where do you find the stories to breathe life into something because I feel like sometimes that's one of the things that people struggle with is they have a piece of data, they have some information, and they don't know how to turn that into a story. Where like, how do you begin, like, if you're, let's say, I'm a leader at a company, I'm about to give a presentation tomorrow, I have, you know, 20 different numbers I need to convey to people, and I want to figure out how to add the human to it how to, you know, add soul and personality into those

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numbers? Where do I go? How to, like, how do I begin searching for something that would that would accomplish that?

Chip Heath 37:55
Yeah. I think my first piece of advice is, is just do something. And, and that was a lesson to me that being results of, you know, five, Oklahoma's is not a great comparison. It's not the best you could probably do, but it's a comparison. And it's going to help people according to the Bing data, doubled the accuracy with which they, they were calling us that statistic later on. And so the first piece of advice is just draw a comparison somewhere, find find something else in a similar domain that has as meaning compare things with, with rival industries, compare things with various groups of customers, you know, whatever comparison you can put on the table is going to help people start thinking through numbers. And then the second thing I think I would do is once you got comparisons on the table, think about whether they're with their motivational and and their you want to, you want to compare things to the best. And so, for example well, here's one from geography that you know from Kid, what's the longest river in the world will be your answer.

Jacob Morgan 39:11
denial,

Chip Heath 39:12
denial, denial. Yeah. knows the longest and what's the widest heaviest volume River?

Jacob Morgan 39:20
Oh, man. I have no idea.

Chip Heath 39:24
Well, Jeff Bezos has corrupted our brains at this point, but it's Amazon. And that's

Jacob Morgan 39:29
I was gonna say that I don't want to sound stupid, but I guess saying I don't know is just said that.

Chip Heath 39:34
No, I mean, it's like, I have the same problem. It's like that that resonates in my mind for a long time ago, but it seems corrupt now, because we've got this other meaning of Amazon but but that's been the traditional because we launched it was the longest in Amazon is the widest the highest volume. And it turns out, that's not right. And because I always thought of those as independently, they were standing head and shoulders above their Are your peers on on whatever dimension they were in, head on. But denial is only tenuously the longest river in fact, some ways you measured the Amazons longer than the Nile. But what is not at all? A question is that the Amazon is the widest heaviest volume river, in fact, of the top 11 rivers, four of the top 11 rivers flow into the Amazon for the Amazon yet. And if you took the remaining seven of the top 11, and you combine them, so this is like the Yellow River, the ends of river, the Mississippi River, if you combined the other seven of the top lemon, you still wouldn't equal the throughput of the Amazon. And, and so what I think is useful about that is just back to the person that's giving the presentation and putting numbers in perspective, you're just you're just looking at the

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data in trying to add up and in partial out what's what's big, and what's not big. And what immediately becomes clear there is we misled generations of kids in science classes, because the not only is just barely longer, the Amazon, people want to have a sense of his is vastly, vastly bigger, and in bigger and really consequential way. And I think that's, that's what, what present presenter ought to be looking for is there lots of these numbers that are going to be about comparisons where this is almost equal to that. But there are gonna be a few numbers that really drive the process that really drive the business results. If we understood those deep, deeply different numbers, I think we are positioned to make good decisions for our group in our company going forward.

Jacob Morgan 41:48
Yeah, and I love that you said any comparison is better than nothing. Because you know, even in your example of Oklahoma's, maybe not ideal, but anything is better than just saying 80% or 50%, or three fourths. So you can add a little bit of context to it, even if it's not perfect. You can always refine that over time, but at least it gives people a visual or something to ground themselves to to make that number a little bit more, more real,

Chip Heath 42:12
so to speak. Exactly.

Jacob Morgan 42:15
And what's your thought on using emotion in numbers? Like, do you find that, you know, if you're someone at a company, and you want to convince somebody else to do something, is hitting that emotional button, important factor? And do you have any suggestions on how to do that,

Chip Heath 42:35
I think is a very important factor. Because we're we're essentially divided up into thinking part of our brains and a feeling part of our brains. And if we're just motivating the thinking part, it's very often too difficult to get ourselves geared up and motivated to make the change. And so in our book, then Jenna wrote a book on switch we talked about, there's two sides of our brain. And, and I think businesspeople, on average, are very comfortable with the cognitive, understanding part of our brain and appealing to that. But we're a little more tenuous about how to deal with the emotion side. And yet, I think the emotion side, change happens when we overcome the the reticence and lack of momentum and inertia that we have to overcome to win or to, to do something differently. And there, you need the Florence Nightingale tactic of really making people incensed by this notion that we're killing off 1100 of our soldiers every year in our hospitals. And she had, she had a graph at one point that showed convincingly that of the soldiers that were dying in a given month in the Crimean War, there was a small number that were shot by the Russians, who were enemies. And there were about eight times that number that were killed off by our own hospitals. And when you show when you show comparisons like that, it, it motivates people at a visceral level that this is wrong, this is not this should not stand, this will not stand. And that's what she used to motivate the people back in at home in England, when she returned. The generals, the doctors, the chief surgeons, the Lords in the parliament, they had to be motivated to tackle an issue. And the way she motivated them was to make the numbers. Emotional.

Jacob Morgan 44:34

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Yeah, I think that's, that's great advice. And like you said, I think a lot of times we do make decisions not just based on logic, but also based on emotion. So if you can kind of hit that emotion button, you're probably going to have some pretty good success with trying to get some change to happen or whatever that change might be. I know we only have a couple minutes left here. So maybe we could wrap up with just the one or two final questions. One of them For people who are looking to start to make some kind of change right away as far as how they think about numbers and use numbers, are there any daresay simply a practical steps that we can take? I know you have a lot of examples in the book. But what are maybe some of the easiest, more immediate changes that people can start to do?

Chip Heath 45:19
Think the easiest change is to take one number in the presentation, and translate it. And don't worry about all the other, you know, so we eventually want to get to every number translated every time, but just start with one and pick your most important within simplify that number. So no, no extra cranky six digit specificity around the number, and talk about what that number means in general. And so if you look at the, the revenue, for example of video games, there's about $200 million. But $200 billion worldwide, in the video game industry, there's about $50 billion worldwide in the movie industry. And there's about $20 billion in the music industry. Now, those numbers may or may not persuade you that video games is really important loot, if you said video games are four times the size of Hollywood, and 10 times the size of the music industry. All sudden, you get a ha moment, it's like, wow, we really need to understand video games. And it may offer an entrepreneur may evoke opportunities there. I mean, think of the award shows that we have for music and for movies, is there an equivalent award show for video games and, and maybe it's the geeks don't look good on red carpets, I mean, that's a legitimate hypothesis. But we got to have 10 times the award shows for for, for video games that we do for for music. And if you get an Academy Award for Hollywood, we got to have three Academy Award shows for the video games industry for various categories. And so taking that number and unpacking the meaning in using comparisons that people already are bought into. I think that's gonna make your number stand more on its own saying compared to everything that we know that is important. So if you're, if you're the size of Hollywood, you're a significant industry, if you're four times the size of Hollywood, that's really impressive.

Jacob Morgan 47:37
Yeah, no, I love that. And last question for you is going to be where people can go to learn more about you and grab your book. And if you have any last parting words of wisdom or advice on numbers, feel free to feel free to throw something like that out there too.

Chip Heath 47:54
Well, feel free to log over to our website, Heath brothers.com. There's a section on on the book Making numbers count. And I think a major piece of advices is you know, we value people who can love Superman could see through walls. And I think the capacity that you have, if you're if your numbers friendly, and you actually do the work to turn your numbers into something that's emotional and understandable. You're helping other people see through walls. Yeah. And that's even better than a superpower.

Jacob Morgan 48:28

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I love that wonderful piece of advice in a great way to wrap up. Chip, thank you so much for taking time out of your day to share your insights with me. I really, really appreciate it.

Chip Heath 48:41
Thank you for having me.

Jacob Morgan 48:43
And thanks everyone for tuning in. My guest again has been chip Heath, make sure to grab his brand new book called Making numbers count the art and science of communicating numbers and I will see all of you next week.

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