

Seeing IS NOT believing!

**Believing we are 'right' DOES NOT MEAN it is correct and 100% true.
Why this is, and what we can do about it.**

Author's Note This whitepaper is the added material for Chapter 5 of *W.I.S.E. Choices at Work*. I originally wrote this paper almost five years ago. I have seen that most trouble with binary decisions occurs when people have dug in on their choice. They do this because THEY HAVE MADE THE RIGHT CHOICE. And by extension, other choices are WRONG. This whitepaper provides reasons to question this assumption.

Introduction This white paper uses the concepts from four books to present a viewpoint on what it means to *believe* you are right versus *knowing* that something is true *and* correct. I have not attempted to summarize these books, as there is too much to cover. Instead, I have gathered the points that apply to being able to use beliefs positively and avoid the negative.

The authors include a neuroscientist, a journalist and several psychologists. The books are:

- *Belief: What it means to believe and why our convictions are so compelling* by James E. Alcock.
 - *Mistakes Were Made (but not by me): Why we justify foolish beliefs, bad decisions, and hurtful acts* by Carol Tavris and Elliot Aronson.
 - *On Being Certain: Believing you are right even when you're not* by Robert A. Burton, M.D.
 - *On Being Wrong: Adventures in the margin of error* by Kathryn Schulz.
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Summary We need beliefs to navigate the world. They help us 'know' which situations create danger and what to do. This includes we must cook meat before eating it or these dark clouds show bad weather approaches. Unfortunately, our belief system has limitations. As an example, optical illusions make us believe we see a three-dimensional object on a flat sheet of paper. We dislike (hate?!) being wrong as evidenced by the statement "I was wrong, BUT..." And then explain all the reasons what we are not wrong. When we accept that most things rarely have 100% certainty, then we have room to

see what may not be true about our belief. Doing this takes a concentrated effort to think critically.

You notice I write in the first-person plural because we all need to be aware of how beliefs help and hurt.

A primer on beliefs

We all have beliefs

Beliefs guide all our actions. For example, people automatically buckle their seat belt when they get in a car. They may do this because they believe it will keep them safe (or because they believe they will get a ticket if they don't). Belief is a combination of content *and* conviction. Content is the mental representation, while conviction is the certainty of the representation, e.g., lemons are sour. Early humans started creating beliefs to enable survival. This includes beliefs about food, predators, and building shelters.

Why we have beliefs

If we did not have beliefs, then we would have to experiment and reinvent the wheel regularly. Continually spending time to figure out the 'right' things to do would not allow much room for progress. So believing that food is good, noises in the bush could be a predator, and unsupported objects fall down covers basic survival needs and enables us to be freed up to do other things. With this last belief it allowed people to think through how to build shelter. In essence, early man believed in gravity, even without seeing it or even knowing how it works.

How we create beliefs

We are cause and effect 'engines'. When something occurs, we look at what preceded it and create a theory of cause and effect. A large percentage of our cause-and-effect theories become beliefs. For example, when we get sick after eating a certain type of food, we believe that if we avoid that food, then we won't get sick. These beliefs create good shortcuts to navigate the complexity of life. They usually are absolute, with no interpretation. When we consider the lemon example from above, the implication is that all lemons are sour, therefore, the belief needs no evaluation.

The limitations of beliefs

**Limitation 1:
Correlation
does not
equal
causation**

Most people know correlation does not equal causation. An example of this is an athlete taking an action that will 'make' them successful, e.g. NHL hockey players grow beards during the playoffs to ensure victory. If this belief was correct, then no team would lose until someone shaved.

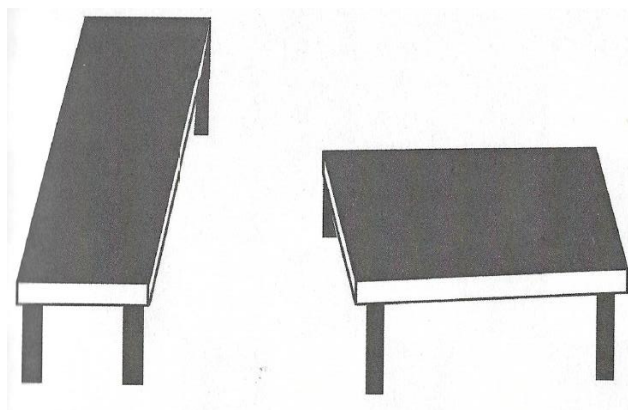
The challenge is that not everyone has the time and ability to craft an appropriate set of experiments to verify the cause. As a result, most of us accept the shortcut of correlation equaling causation, even though this may create some errors. Therefore, having a belief that snakes are dangerous protects us from approaching venomous snakes. We accept we will avoid non-poisonous snakes as well. Better safe than sorry.

A takeaway from this limitation is to understand that not all beliefs are 100% true.

**Limitation 2:
Our input
capabilities
are not
perfect**

Although the human body has amazing capabilities, it is not perfect. Examples include:

- Our sense of sight can detect micro-movements in a person's face to determine their mood. Yet we believe the two tables in the Shepard table illusion below are different sizes (get your ruler out and you will see they are the same!).
- We can 'hear' sarcasm even when the words say something else, but we believe we hear the doorbell or a phone when we hear white noise like the sound of water in a shower.



A takeaway from this is that beliefs based on 'seeing' or 'hearing' with no other questioning may not be 100% true.

**Limitation 3:
Our
processing
capabilities
are not
perfect**

Those of us who are not experts in brain science like to think of the brain as a 'computer' that handles inputs in 'blocks' of data. This data gets processed as a unit to create 'the answer'. Neuroscientists have created a better model. Our brains have small processing units, called modules that process minute amounts of data. The modules combine their outputs to a next level of modules hierarchically. Each level of data gets compiled to 'complete' a full 'answer'. In essence, our brains construct the answer from small pieces of information.

Dr. Burton illustrated this concept in the following example from *On Being Certain*:

Is this an 'H' or an 'A'? (Of course, you may also believe it is 'just' three lines.)



Now what does it look like?



It seems to be both an 'H' *AND* an 'A' depending on its location, provided that you believe that the intent was for two words to be formed.

The brain stitches together information and then goes with a best approximation of what 'the answer' is. Most of the time, it does a great job, but it is not perfect.

The takeaway from this is that our 'answers' have a probability to them.

**Limitation 4:
Our memories
are not
perfect**

Having beliefs requires us to remember them. How else would we 'know' that 'lemons are sour'? We are pretty good at remembering facts like Washington, D.C. is the capital of the United States. What we are less good at is remembering what we did on our class trip to Washington, D.C. That is because recalling episodes from our lives requires reconstructing the memory from pieces of data that make up the memory. The latest recreation is what we believe to be true, regardless of whether it is.

Psychologists have conducted repeatable experiments regarding 'flashbulb' memories for where people were when significant events like the events of September 11th, 2001 happen. They have people hand write where they were, with whom, etc. Then three years later they have them answer the same questions. Only 7% matched perfectly, 50% were wrong in 2/3's of their 'facts', and 25% were wrong in every major detail. When shown their original handwritten document, they acknowledged it is their handwriting, but what they wrote was 'wrong'.

The takeaway from this is that what we believe is subject to error.

**Limitation 5:
Determining
what beliefs
are
fundamental
and which are
not**

Some beliefs are fundamental and do not need to be changed. Examples of these include: food is good; unsupported things fall down; and putting your hand into a fire will hurt you. The challenge comes when beliefs that aren't truly fundamental become dogma. This means no one can question them, even with evidence to the contrary.

In the Middle Ages, saying the earth was not the center of the universe could get you executed, despite evidence that the planets orbited the sun. To avoid a death sentence, Galileo had to sign a declaration acknowledging his 'error'. He had to say he made a mistake by saying that the earth was not the center of the universe based on his astronomical observations.

The takeaway from this is to remember that the 'facts' that underlie many beliefs can change when new investigations occur. For example, we now know that the earth is not flat and that it orbits the sun. We also know that solar eclipses occur when the moon gets between the sun and the earth during normal daylight hours. Note that truly fundamental beliefs don't change, i.e., eating food is still necessary.

Getting rid of wrong beliefs is harder than it sounds

Why can't we just get rid of the 'wrong' beliefs?

Declaring something to be 'wrong' means that somebody (and most likely their many believers) were wrong. Admitting error is something that few people will do. In fact, when challenged about being wrong, most people dig in deeper to defend their position. One study had people compare four types of pantyhose and then declare which was the best. In reality, all four types were identical. When people were told there was no difference and therefore there could be no best, they still defended their choice. If people can get this vested in a choice that really does not matter, then imagine how defensive a group would get when core beliefs get questioned.

Psychologists use the term *cognitive dissonance* for when someone has a belief declared to be wrong. This causes 'pain' based on this logic: *I am a smart person, and yet I am wrong. How can this be?* Easing the pain can take one of two pathways:

1. I am not as smart as I thought because I am wrong, so what can I learn from this experience?
2. I am smart and I am not wrong, so how do I explain why I am right.

Few of us pick the first pathway. And if we do, we say something like "I was wrong, BUT..." The phrase after the 'but' then outlines all the reasons we aren't wrong. Our desire to be right sets off lots of justification and defensiveness. The more that 'outsiders' declare the wrongness of the belief, the more the believers defend it.

The unwillingness to admit error occurs, although most cultures have some version of the concept *to err is human*. What don't we like about being human?

Why can't they be more rational?

None of us can be completely rational despite our best intentions. We all have emotions which influence how we think. We have pride that makes us feel good about being right. Our emotional components contribute to creating prejudices, biases, and blind spots.

Several experiments have shown that in situations with opposing groups, the level of needing to be right (and them to be wrong)

overrides any rational thinking. The experimenters took a proposal from one side, e.g. Democrat and relabeled it as being from the other side, e.g., Republican. When Democrats looked at the alleged Republican proposal, they rejected it. The experimenters found Republicans would also reject their own proposal when labeled as Democrat. If a group can reject their own idea based on a label, then there is very little chance of being rational.

When we want to be right, then we use a confirmation bias. Facilitated communication allegedly allowed autistic children to type messages to their parents. The facilitator helped the children type. The parents and the facilitators really wanted the autistic child to communicate. Unfortunately, in controlled experiments, the technique showed that the child could not communicate.

Blind spots mean we don't see something that everyone else can see. Typically, this means that we can see a flaw in thinking or behavior in others, but fail to see the same flaw in ourselves. In looking at ourselves, we see not only our thinking or behavior, but also we have our rationale for why it is right. When we look at others, we only see what we observe with no rationale.

Some tools to move toward more truth

Is there anything that we can do?

Each author provides ideas for how to avoid being dogmatic with beliefs and embrace the lack of certainty. Each author closes their book with thoughts on 'what to do'. From a practical viewpoint, I cannot list all their suggestions. I think that their choice of chapter titles sets a good tone and then I will provide some of their ideas that I think we can all embrace.

Chapter Title (Book)	Key tips
A Firewall to Folly (<i>Belief</i>)	Alcock sees the need for a combination of science and philosophy. He advocates using Critical Thinking to provide 'quality control' for our belief engines. He closes his book with this thought: "Critical thought requires being prepared to disagree with ourselves. This is never easy, but it is the challenge of us all."
Letting Go and Owning Up (<i>Mistakes Were Made [but not by me]</i>)	The authors have the following advice: <ul style="list-style-type: none"> • Admit mistakes by saying "I was wrong (period!!)." No 'but...' allowed. • Correct the mistake. • Learn! Sometimes they say that we may need independent commissions with no conflict of interest or cognitive dissonance to assuage.
Final Thoughts (<i>On Being Certain</i>)	From studying the mechanics of our brains, Burton concludes we are really just assessing the odds of being right, with nothing being <u>100% certain</u> . As a result, we should embrace that something we believe might be 'highly likely' to be true, but there is still the chance that it is not. How much are you wrong, and how much might the other view be right?
Embracing Error (<i>On Being Wrong</i>)	We are human, therefore we <u>will</u> make errors. For some reason, we are well equipped to laugh at the errors of others. Why not laugh (and learn) from our own?

Closing Thoughts

One thing to remember

One of my favorite short stories deals with perception. Five blind people who are touching a unique part of an elephant declare they 'know what an elephant is'. Here are their declarations and vantage points about what an elephant is:

1. It is hard like a rock and shaped like a curved spear—A tusk.
2. It is a snake—The trunk.
3. It is a rope—The tail.
4. It is a tree trunk—A leg.
5. It is a big wall—The torso.

None is wrong, *and* none is 100% correct. Except for truly fundamental beliefs, most of our beliefs fall into the same category.

About the author

As a Solution Instigator Dan Kowalski unblocks and speeds up teams and individuals to create productive, non-obvious solutions by asking better questions. He moves them beyond their usual approaches and ramps up the use of their innate unconventional thinking. Dan has worked with clients in over 25 countries and includes FMCG, Technology, Entertainment companies. Since everyone thinks as part of their job, he has partnered with people from all functional areas.
