

How to Analyze Information

A Step-by-Step Guide to Life's Most Vital Skill

by Herbert E. Meyer

We are living now through the early decades of the Information Revolution, and it's a miracle of human energy and ingenuity. Never before has so much information been available, so easily and inexpensively, about so many subjects.

And the most important thing we've learned is that information is like water. It's vital to our lives; we cannot survive without it. But if too much pours over us – we drown. To keep from drowning in information we must learn to use it properly, which means figuring out what the information is telling us. After all, it isn't the information itself we use to make decisions; it's the knowledge within the information that we use. This is why we must learn how to analyze information – how to determine just what information we need to make the decisions we face, how to get that information, and then – this is the most crucial step of all -- how to reach inside this information to grasp the knowledge it contains.

Of course, we all analyze information all the time, even without realizing we're doing it. For example, we see the fuel gauge in our car pointing toward "empty," and we understand it's time to look for the nearest gas station. We arrive at the airport, glance at the departure screen and see that our flight has been cancelled, and know that we must run to the ticket counter and book another flight. We watch a weather report on television alerting us that a blizzard is heading our way, and we dash out to buy a shovel. Extracting the meaning of information is part of human nature; we've always done it, and we couldn't stop doing it even if we tried.

What's changed is the volume of decisions we all make, and their impact. In today's world, each of us makes more decisions than our ancestors made – not only in our personal lives, but more importantly in our professional lives. Moreover, the isolation of families, communities, and businesses that marked earlier epochs has long since ended; today a decision made in Kansas City affects people in Miami and Mumbai, and a decision made in London may be based, at least in part, on information that originated in Cairo or Beijing. And these countless decisions we make -- in our personal lives, at work, in our communities, in business, and in politics -- all combine to have a profound effect not only on ourselves and our families but on our countries and even, sometimes, on civilization itself.

This means that making the best possible decisions is more important than ever. And since information is the raw material of decision making, this is why it's time to learn, step-by-step, how to analyze it.

Step One: Figure Out Where you Are _____

You cannot make sense of information unless you know where you are when you look at it.

To use a simple example, imagine that you are driving toward San Francisco, where you plan to spend the night at a hotel. You hear a “beep,” glance down at the dashboard and see a yellow light on the fuel gauge signaling that there’s very little gas left in the tank. If your hotel is at 55 Fourth Street, and you see that you’re just now passing 27 Fourth Street – you can keep going to the hotel and need only remember to buy gas tomorrow. But if you’re on the highway when you hear that “beep,” and the last sign you remember seeing said that San Francisco is 200 miles ahead – you’d better find a gas station.

Now, you may not know precisely whether the hotel is three blocks ahead or four blocks – or 190 miles or 170 miles. But in either case you ought to have a general idea of how far you have yet to go, and know whether finding a gas station is something you need to do immediately or can leave to the next day.

Sometimes, figuring out “where you are” isn’t a question of geography. Let’s say you’re a senior in high school starting to send in applications to colleges. If you’re a straight-A student, editor of the high school’s newspaper and captain of its tennis team, it makes sense to apply for admission to the most prestigious universities, such as Stanford and Princeton. At this point, you don’t know which of the dozen or so leading universities would be best for you – or which are most likely to admit you – but you know the category of university to aim for. On the other hand, if you’ve got a C-minus average, failed algebra twice and passed on your third attempt only because your parents hired a private tutor, and have never participated in any extra-curricular activities – applying to the most prestigious and difficult-to-enter universities makes no sense. You should aim for admission to one of the local colleges in your state (some of which are excellent, by the way) and try to get a fresh start there.

In either of these cases, you still don’t have the detailed information you will need to proceed with college applications. But by figuring out “where you are” – in this case, academically and personally, rather than geographically – you are able to find your way forward.

Until you know “where you are” you cannot make good use of the available information. That’s because you cannot know what specific information you’ll need next, or what the information you’ll be looking at when you get it will mean. So take the time to figure out “where you are” – literally or metaphorically -- before moving on to the next step.

Step Two: Be Sure You're Seeing Clearly ---

It's obvious that seeing clearly is important. But when you're dealing with information, "clearly" has a special meaning that isn't so obvious.

Let's say you're attending a seminar, and a colleague who isn't able to attend has asked you to provide her not only with a summary but also with a physical description of the speaker. In fact, the speaker is a middle-aged, average-sized, blond-haired man wearing a dark suit, a white shirt and a red tie. But after you've taken your seat someone places a prism in front of you – one of those long, triangular bars of glass. Now, since a prism refracts and disperses light your view of the speaker will be distorted. The speaker's hair might appear to be green, and his tie purple. He might look very thin and tall. You might not even be able to tell if it's a man or a woman. In short, you will get everything wrong.

When we deal with information, we sometimes see through prisms – not real ones, made of glass, but "intellectual" prisms, in our minds. In other words, we approach an issue with a distorted view of it. For instance, if you believe that your best friend is honest, while everyone else knows that your best friend is a crook, you won't see all the evidence of his dishonesty that's obvious to everyone else – at least not until it's too late. Or, if you're driving toward San Francisco and you have it in your head that this large and vibrant city is a tiny village of just 1,500 residents – boy, are you in for a surprise. When you reach its outskirts, you will be utterly disoriented and confused by what you see before you. If you think that India is a poor, backward country with no technology and an uneducated population – you are seeing India through a prism, and you will be blindsided by its economic power, its technological achievements, and its rapid emergence as one of this century's most important nations.

In politics, the word for these intellectual prisms is "ideology." During the Cold War years, people living in the West who thought the Soviet Union's leaders were a decent, peace-loving group of men and women were always caught off-guard by the Kremlin's vicious and aggressive military actions. Likewise, members of the Soviet Union's ruling Politburo -- who believed that the US was always on the verge of economic collapse due to the so-called "inherent contradictions of capitalism" -- were always astonished by the strength and resilience of the US economy. Today, Americans who believe that all Republicans are stupid, or who believe that all Democrats are evil, are also seeing through ideological prisms. And so they are always being surprised or caught off-guard by sensible Republican policies or decent Democratic initiatives; sometimes they cannot even see the obvious merits of these policies and initiatives because they are so sure they couldn't possibly be there.

The key to seeing information clearly is to make certain there isn't a prism between you and whatever you are looking at. You may not know whether the population of San Francisco is 500,000 or one million – it's about 740,000 – but you ought to know it's a big city. You shouldn't think your best friend is a saint if he's a crook, and you don't need to be an expert in world economics who can reel off India's current economic growth rate – it's about 9 percent – to know that the image of India as a hopelessly backward sub-continent is long since outdated. And if you're dealing with political issues, never let yourself be blinded by ideology.

Seeing information clearly, just as knowing where you are, means you need to have a generally accurate idea of whatever person, place, organization, situation, or issue that you're looking at.

Because these first two steps of the analytic process are "invisible" most people aren't even aware that they need to be taken before moving on to the next, "visible" steps in the process. So they skip these first two steps and start with the third. It isn't provable with statistics, but I'm convinced that the cause of most bad decisions lies in the failure to recognize that Steps One and Two exist and must be taken. So, take all the time you need to figure out where you are and to be sure you aren't seeing through a prism. Then, and only then, are you ready to move forward to the "visible" steps of analyzing information.

Step Three – Decide What You Need to Decide ---

My seventh-grade history teacher in New York, Mrs. Naomi Jacobs, never let a day go by without hammering into our heads a sentence that is so insightful it ought to be painted onto the walls of every classroom and office in the world: "*The question is more important than the answer.*" She was right; it is. If you don't ask the right question, you cannot possibly get the right answer.

Decide what it is you need to decide. If you're driving to San Francisco and the light on your fuel gauge is flashing, you must decide whether to stop for gas or to keep driving to your destination. Or, you must decide that the question to which you need an answer is, "To which universities ought I apply?" If you're a business executive, the question may be whether your company should open a sales office in New Delhi or Sao Paulo. As a voter, you'll need to decide which candidate to support in the upcoming election.

Most of the time, deciding what you need to decide isn't hard. The answer is obvious, and it takes just a moment's thought to get it right. But sometimes, deciding what you need to decide can take some effort. For example, if you're a high-school senior who hasn't done well academically and who doesn't have

a clue what to do with your life after graduation, the decision you need to make isn't "To which universities ought I apply." The decision is, "Should I go to college after graduation, or should I find a job and think about college in a year or two?" In business, the decision may not be whether to open a new sales office for your company in New Delhi or Sao Paulo, but whether to try and increase sales of your company's products by pushing harder in your domestic market or by going overseas. Only after you've decided that going overseas would be best are you ready to decide whether it would make more sense to open a sales office in New Delhi or in Sao Paulo.

In other words, sometimes you must pause for a moment to be sure you're asking the right question. If all your friends are talking about the colleges they hope to attend, it's easy to get caught up in their enthusiasm and to start doing the same thing yourself, instead of stopping to realize that going to college may not be right for you. And if everyone in your office is debating whether the market for your company's products would be larger in India or Brazil, it can take a huge effort to slam on the brakes by asking whether expanding overseas makes more sense than expanding in your company's domestic market.

The question really is more important than the answer – thank you, Mrs. Jacobs -- so be sure you make an effort to get it right.

Step Four – Determine What You Need to Know _____

Let's say that you've invited friends to your home for dinner. You've decided what you want to cook for them – meat-potatoes-vegetable, or a curry, or *lasagna*. Your next step will be to make a list of the ingredients you'll need to cook whatever you're planning to serve.

What ingredients are to a meal, information is to a decision. Once you've decided what you're going to decide, the next step is to make a list of the information you'll need to make that decision.

For instance, if you've decided to apply for admission to your country's most prestigious universities, make a list of these universities, then add to this list the specific questions to which you'll need answers such as the location of each university, the various courses they offer, the annual cost of tuition and the kinds of scholarships each university makes available to its students. If you've decided to open a sales office for your company in either New Delhi or Sao Paulo, you'll want to know the potential size of the market for your company's products in India versus Brazil, the competitors you'll be facing in each market, and the costs of renting office space in these two cities.

Sometimes the list of information you need is so short that writing it out would be silly. If the warning light on your fuel gauge comes on, all you need to know is whether this means you have two gallons of gas left in the tank or four. (So, just pull over to the side of the road, stop, take the operator's manual out of the car's glove compartment and look in its index for the appropriate page. You'll have the answer in ten seconds.) But sometimes the list of information you'll need is long, and writing it out really is necessary. If you're trying to decide in which foreign country to open a new sales office, you'll want information about markets, demographics, competitors, taxes, import-export regulations, labor laws and other issues that are complex, and too important to risk forgetting.

Take as much time as you need to make the most complete list you can of the "ingredients" – the information – you're going to need. Of course it's always possible that you'll leave something out, just as experienced cooks sometimes leave an item off their shopping lists. And when this happens, you'll do what the cooks do; you'll run back to the store to get what you've belatedly realized you need. Just do the best you can to make your list of necessary information and if you do leave an item off your list – well, you can get it later.

Step Five – Collect Your Information _____

The first thing you need to figure out is the most reliable source for each piece of information you need:

If you want to know what time your flight to London will arrive at Heathrow airport, don't ask a friend who took that same flight last month; your friend could remember incorrectly, or it's possible that the schedule itself has changed. Check with the airline itself to be sure you've got the correct arrival time. If you're trying to decide whether to seek admission to a certain university, your best source for information about its courses, tuition, and scholarships is the university itself, for instance from its official catalog and website. But if you want to get a feel for what life on campus would be like, the best source for this information will be students and former students. You'll want to talk with some of them directly – in person, or by telephone or email. Likewise, if you're trying to get information about tax rates, labor laws and import-export regulations for New Delhi and Sao Paulo, these cities' governments will be the most reliable sources. But if you want information about the costs of renting office space in these cities, you'd be smart to check with local property agents rather than with government officials; the property agents are more likely to have up-to-date numbers – and they are more likely than government officials to tell you the truth about the office rental markets in their cities.

You've already made a list of the information you're going to need. Now, next to each item, write down the most reliable source for it – a government agency, a university or another organization such as a business or an industry association, or specific individuals.

Now it's time to figure out the best way to access the sources you've identified:

Remember, accessing the information you'll need to make a decision is the equivalent of shopping for the ingredients you'll need to cook a meal. As every experienced cook knows, sometimes you can find all the ingredients you need at the supermarket, so you can get your shopping done quickly and easily; other times, you start at the supermarket and then go on to the specialty shops for those ingredients the supermarket doesn't carry.

These days, we have "information supermarkets" like *Google* that make the chore of information-shopping quick and easy -- and free. The range and breadth of information available online today is simply astounding, and it's a trickle compared with the torrent of information that will be available online tomorrow and in the years and decades that lie ahead. But just as even the largest supermarkets don't carry every imaginable ingredient, not all information is available online. There will always be some information you'll need that you won't be able to get at the "information supermarkets" – or, for that matter, just by sitting at your desk.

Give yourself as much time as possible to access all the information you need. If you're lucky, the "information supermarkets" will supply everything through the websites to which they link. If you're not so lucky, you'll start with the "information supermarkets" and then go on to look up information in books, magazines, and by talking with people in person, on the telephone, or by email. Sometimes you will be able to do all this without ever leaving your chair. Other times you'll need to visit a library, meet with someone in person, or even travel to another city or country. As a general rule, you'll discover that there is always one source – one website, for instance, or one person – where the correct answer to your question can be found. Keep going until you find this source.

Since time is always limited, use your best judgment about how much effort to spend for each item on your list. Keep in mind that, just as all the ingredients to a recipe aren't equally important, not all items of information for a decision are equally important. After all, if necessary you can bake a *lasagna* without oregano; but you cannot bake a *lasagna* without pasta. As you "shop" for the information you need, try to separate out the various items into two categories: those which are necessary, and those which are merely desirable. If you're deciding whether to seek admission to a certain university, it's necessary to know the cost of tuition; knowing whether this university provides television sets in every dormitory is merely desirable. If you're deciding whether to build a factory in, say, Shanghai, you must know the local tax rates and labor laws; you may also want to know if there's a golf

course nearby, but you really don't need to know this.

As you go about the business of accessing information, start by seeking answers to the necessary questions. If your time permits, then go on to search for answers to the desirable questions.

Step Six – Turn the Information Into Knowledge _____

When you've invited friends to your home for dinner, you don't put all the ingredients you've gathered onto the table and expect your friends to imagine what you planned to serve. Before they arrive, you cook the ingredients into whatever it is you've decided to serve – meat-potatoes-vegetable, curry, or *lasagna* – and then put the finished meal on the table for your friends to enjoy.

Likewise, you've got to "cook" the information you've collected into a finished product so that you can use it to make a decision. Unlike cooking the ingredients you've gathered into a meal – which is mostly a physical process -- reaching inside the information you've gathered to grasp the knowledge it contains is an intellectual process. Your objective is to understand what the information means to you in light of the specific decision you're facing.

As you study the information you've collected, the first thing to look for is facts.

How much fuel is left in your tank, and what's the distance from where you are to your hotel? How much does Princeton charge for tuition, versus how much for tuition at Stanford University? What is the corporate tax rate in India, and what's the comparable rate in Brazil? What time does my flight land at Heathrow airport? If the sources from which you've gotten the information are reliable – the owner's manual for your car, the universities' official websites, the governments of India and Brazil, the airline – then you may be confident that the information you've collected is accurate. But if you get conflicting facts – for example, one source reports that tuition at Princeton is \$30,000 annually, while another source reports that Princeton charges \$35,000 per year – you've got to resolve the inconsistency. The chances are that one source is right while the other is wrong. When this happens, you must decide which of the two sources is most reliable. But it's possible that both sources are accurate, for instance if one source is including the cost of room-and-board while the other isn't. Take the time to sort it out.

As you continue to study the information you've collected, you must also keep an eye out for patterns.

Seeing patterns is part of what it means to be human; it's how we make sense of

the world. For example, we learn that the sun always rises in the east and sets in the west; that men tend to be bigger and physically stronger than women; that people who are kind tend to have more friends than people who are cruel. More importantly, by seeing patterns we can use our experience to predict the future. And by predicting the future, we can change the future before it happens. For example, we learn from experience that winters are colder than summers. So rather than freeze to death when winter comes, in late autumn we prepare by purchasing fuel to heat our homes. We learn from experience that traffic is heavier during rush hour than at other times of the day. So when we must drive somewhere during rush hour, we leave our home or office a few minutes early, to make sure that even if we do get stuck in a traffic jam we won't be late for our appointment.

Some patterns are so obvious that we see them without even being aware of it. For example, we cannot help but notice that cities are noisy and crowded, while country villages are quiet and sparsely populated. But some patterns aren't so obvious, and it takes experts – qualified people who've done serious research -- to point them out. Economists tell us that people who live in countries with free-market economies tend to be more prosperous than people who live in countries whose economies are controlled by their governments. Cardiologists report that the incidence of heart disease among people who are overweight is higher than the incidence of heart disease among people who eat sensibly and get a lot of exercise.

As you study the information you've collected, make a conscious effort to look for patterns. This is how you will make sense of the information. For instance, you'll see that tuition at all the prestigious private universities in the US is higher than tuition at all the public universities. Or that labor costs in developing countries tend to be lower than labor costs in Europe. Moreover, by consciously looking for patterns you will be able to spot exceptions to the patterns. For instance, if you're comparing tuition fees at prestigious American universities you will see that all of them are expensive to attend – but by consciously noticing this you may also see that at one of these universities tuition fees are markedly lower than at the others. If you aren't wealthy, you may want more information about this high-prestige, more affordable university. If you're trying to decide in which of six developing countries to build a factory, you may find that labor costs are lower in all six countries than in Europe -- but quite a bit higher in the sixth developing country than in the other five. You'll probably want to scratch Country-Number-Six off your list of potential factory sites.

By studying the information you've collected until you have determined the facts and seen the patterns it contains, you have turned raw material into a finished product. You have turned information into knowledge.

Step Seven – Add the Final Ingredient: _____

Before actually making your decision, there is one final ingredient you will add whether you want to or not: your own judgment.

Judgment is the sum total of who we are – the combined product of our character, our personality, our instincts and our knowledge. Because judgment involves more than knowledge, it isn't the same thing as education. You cannot learn judgment by taking a course, or by reading a book. This is why some of the most highly educated people in the world have terrible judgment, and why some people who dropped out of school at the age of sixteen have superb judgment. After all, the most visible pattern in the world is that different people respond to the same circumstances in different ways. Some people are naturally sensible, while others are naturally foolish. Some people enjoy taking risks, while others tend to be cautious. Some people are congenital optimists, while others are always pessimistic. Some people just seem to have good instincts, for instance about other people, or about technical issues such as whether the price of crude oil will rise or fall in the coming months. Other people's instincts always seem to lead them astray.

Now you can understand why two people, facing the same decision and armed with precisely the same information, will make different choices. As you reach your decision, you will be combining the knowledge you've gained from the information you've collected with your own character, your own personality, and your own instincts. You cannot help but do this, because you are a human being and not a machine.

At least in the short term, there is little you can do to change your judgment. It's who you are. But if you are aware of who you are – and if you have worked hard to collect information and then to turn this information into knowledge -- you will be more likely to make the decision that's right for you. And this, of course, is what analyzing information is all about.

Why Bother to Learn All This?

A Personal Note: _____

Not all decisions are equally important. Whether you decide to watch television this evening or to take a walk isn't likely to change your life. Whether your family decides to spend its next vacation on a beach in Mexico, or visiting Tokyo, won't alter the course of world history. But some personal decisions really do matter – which college to

attend, for instance, or whom to marry, what job to take and whether to have children. It's the same in our professional lives. Some decisions are trivial while the impact of other decisions will be huge. Moreover, as I wrote in the opening paragraphs of this guide, today we all make more decisions than ever before – about ourselves, our jobs, our communities and our countries -- and we make them faster. In the modern world, the cumulative effect of all these decisions is enormous. The economic decisions we make affect the lives of millions of people in scores of countries. The political decisions we make can preserve the peace, or lead to war. In a world where one company's bankruptcy can send a financial shockwave crashing into three continents before day's end, and where a nuclear-tipped missile can strike anywhere on earth within an hour, we cannot afford to make too many mistakes.

Like everyone else, I've made both personal and professional mistakes. But along the way I've been lucky enough to meet some of the world's most interesting and intelligent people. And I've been smart enough, at least some of the time, to take advantage of my good luck by trying to learn from these people. Perhaps the most remarkable of all the people I've met is Dr. Jonas Salk, who developed the polio vaccine and, by doing so, became one of the few men in history whose work saved countless millions of lives.

One evening Jonas and I were having dinner at a beachfront restaurant near his home in La Jolla, California. We fell into a conversation about the debate just then starting up between advocates of Charles Darwin's theory of evolution and advocates of a new theory called Intelligent Design. As usual, I was asking questions and Jonas, out of kindness and infinite patience, was trying to help me understand what the debate was all about. At one point during our conversation I asked Jonas if he subscribed to Darwin's famous theory about "survival of the fittest." There was a long pause while Jonas chewed his food and thought, and looking across the table I had the strong feeling that this question had been on Jonas' mind before I'd asked it. He seemed to be searching for just the right words, and when he finally responded he spoke so quietly I had to lean forward in my chair to hear him:

"Survival of the fittest is correct," he said. "But we need to change the definition of "fitness" from what it meant when Darwin used it. In the modern world, "fitness" no longer refers to physical strength. From now on, it means wisdom."

I knew right then that I had just been privileged to hear one of history's most brilliant men delivering one of history's greatest insights. Our world is wonderful and infinitely fascinating. But it is also complicated, and therefore very dangerous. If we are to live in peace, freedom and prosperity -- if the human species is to survive -- we must learn to rely more on our minds than on our muscles. We must force ourselves to value wisdom above strength. And this is why it's worth the time and effort to master the steps I've outlined here. When you learn how to analyze information, you are really learning how to think.

About the Author:

Herbert E. Meyer is a leading authority on the use of information.



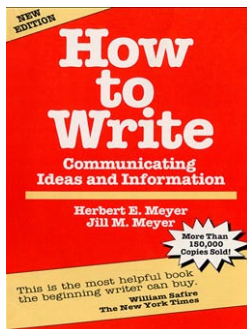
During the Reagan Administration, Mr. Meyer served as Special Assistant to the Director of Central Intelligence and Vice Chairman of the CIA's National Intelligence Council. In these positions, he managed production of the U.S. National Intelligence Estimates and other top-secret projections for the President and his national security advisers. Mr. Meyer is widely credited with being the first U.S. Government official to forecast the Soviet Union's collapse -- a forecast for which he later was awarded the U.S. National Intelligence Distinguished Service Medal, which is the Intelligence Community's highest honor.

Formerly an associate editor of FORTUNE, he has authored several books including "The War Against Progress," "Real-World Intelligence", and "Hard Thinking". Mr. Meyer and his wife, Jill, are co-authors of "How to Write", which is among the world's most widely used writing handbooks and which is now available as a downloadable ebook for just \$1.99.

*Mr. Meyer's essays on Intelligence and Politics have been published in **The Wall Street Journal**, **National Review Online**, **Policy Review** and **The American Thinker**.*

Mr. Meyer is host and producer of "The Siege of Western Civilization", a DVD that outlines the threats to America's security, economy, and culture.

*These days, Mr. Meyer is active on the lecture circuit. He delivers his overview of global trends and developments, entitled **What in the World is Going On?**, to corporations, business associations, student organizations and public affairs groups throughout the world.*



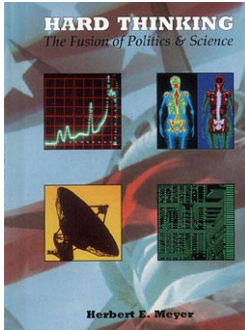
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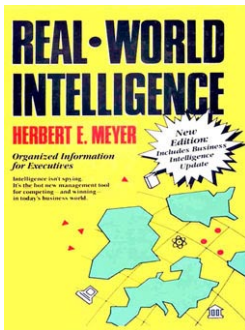
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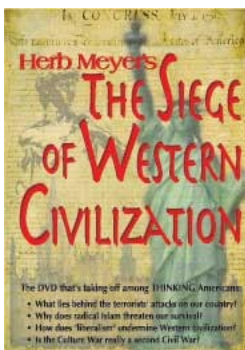
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