

**“Signal to Noise: Data and Sanity”
a talk by Rev. Dr. David Breeden
at First Unitarian Society of Minneapolis
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Blurb: The video "Baby Shark" is the first on YouTube to cross the ten billion views milestone. Ten billion? We are living in what the World Health Organization terms an "Infodemic." Information is everywhere. How much of it can one person absorb? How can we avoid the "noise"?

INTRODUCTION: Billion with a B

The video "Baby Shark" is the first on YouTube to cross the ten billion views milestone.

Ten. Billion. Views.

To put that in perspective (since my mind can't encompass billions with a B) estimates are that there have been five billion bibles printed since the invention of the printing press.*

In other words, ten billion is a lot of views. And counting!

I should also mention that "Baby Shark" has other uses. For example, the New Zealand government is playing "Baby Shark" over loudspeakers to drive out truckers striking in the capitol.

What I want to consider today is the implications of not only an explosion of information but also the increasing intrusion of data into our lives as advertisers hone skills at "hooking" us.

It's difficult to get your mind around: there are 300 hours of videos posted on YouTube every minute of every day.

That's twelve-and-a-half days of 24-hour viewing uploaded every minute. No, you *won't* be watching it all. That's just it—the information available far surpasses the ability of any human being to process.

Before the pandemic, we were experiencing an accelerating rise in the amount of information available. Then, pandemic, and even more information . . . and *misinformation*. This, combined with social isolation, has led to what the World Health Organization calls an "Infodemic," which the WHO defines as,

too much information including false or misleading information in digital and physical environments during a disease outbreak. It causes confusion and risk-taking behaviors that can harm health. It also leads to mistrust in health authorities and undermines the public health response. . .*

Yep, WHO, that sounds like an accurate diagnosis. To combat the disease, the WHO even offers an online course "to fight the infodemic."

The term *infodemic* is a portmanteau word, conflating "information" and "epidemic." The term *infodemic* is not without its critics, who claim that imagining our situation as a disease simplifies the social complexities that combine to create misinformation.

Another example of the issue are two books published by the consultant Nir Eyal, both bestsellers: *Hooked: How to Build Habit-Forming Products* and *Indistractable: How to Control Your Attention and Choose Your Life*.

Talk about creating a need and then filling it!

Those books contain such wisdom as:

"The cure for boredom is curiosity. There is no cure for curiosity."

"79 percent of smartphone owners check their device within 15 minutes of waking up every morning."

"Dissatisfaction and discomfort dominate our brain's default state, but we can use them to motivate us instead of defeat us."

"If it can't be used for evil, it's not a superpower."

ONE: Zettabyte with a Z

I got curious about all this data that I'm always reading about, so I looked up some stats. A very interesting collection is by tech writer Jacquelyn Bulao in an article titled "How Much Data Is Created Every Day in 2022?" from the online magazine *Techjury.net*.

I learned some new terms. There are bytes. Kilobytes. Megabytes. Gigabytes. Terabytes (equals 1024GB). Petabytes. Exabytes. Zettabytes. And Yottabytes, which equals 1,204 zettabytes.

By the end of this year, there will be 44 zettabytes of information digitalized on the planet. On an average day on earth, human beings produce 2.5 quintillion bytes of information. A quintillion, by the way, is a one followed by 18 zeros.

(Are you still wondering why you're tired and distracted all the time?)

By 2025 that daily amount produced will be 463 exabytes – that's a billion billion bytes.

But also, BTW, human beings now produce 60% of data. Forty percent of data is produced by . . . data, apparently.

And, one last stat: the majority of the data in existence . . . has been generated in the past two years . . . *

Do I understand what all this means? Nope. It just gives me a headache.

#When I start thinking about information overload and the 24-hour news cycle, one thing that pops into my mind is "don't shoot the messenger." "Media" is just that: the *medium* . . . the thing between the events and the data and you and me.

The philosopher and historian Plutarch, writing at the beginning of the Common Era, relates the story of Tigranes the Great, king of what is now Armenia. A messenger rushed into the court of Tigranes, telling of an invasion by the Romans. Tigranes was so upset by the news that he had the messenger beheaded. After which, as you might expect, the news reaching Tigranes improved considerably. As a matter of fact, he was getting only *good* news.

But the reality on the ground, as we might call it, was not as rosy

“Don’t kill the messenger” if you want to know the truth.

However, in the United States, “news” is big business. Sure, we have National Public Radio, but from the local paper to the 24-hour news networks, most media depends upon advertising, which means money, which means that we consumers will be sometimes – or often – treated like Tigranes the Great, told only what we want to hear.

After all, we don’t have to *behead* the unwanted messenger. All we have to do is switch channels. Which, unfortunately, leads to the echo chambers that most of us appear to be living in these days.

Data. Media. Echo chambers. Bias. All those hooks. Yes, it can make you feel like plugging your ears and closing your eyes and chanting “nah, nah, nah, hah.”

Then #I think about that old formula: “The truth shall set you free.”

No one ever said freedom is easy

#As the French philosopher Jean-Luc Nancy says, “What this world needs is truth, not consolation.”

TWO: Bandwidth and the Good Ol’ Days

I titled my talk today “signal to noise.” The signal-to-noise ratio is a real thing in science and engineering, referring to *meaningful* input and *meaningless* or unwanted noise. That concept is part of what is known as information theory.

It’s a thing nowadays to talk about “bandwidth,” as in “I just don’t have the bandwidth to do that.” It’s a metaphor that refers to the frequency, or “band,” on which information is transmitted. All these terms are part of information theory.

When I became a DJ back in the 1970s, we were required to have an engineer’s license from the Federal Communications Commission. That’s not necessary nowadays, but in the earlier days of radio and television, transmitters would drift off their ascribed frequency. Their band. (Doing that consciously is how you jam signals.)

If, for example, your radio station is "101.5" that's where you are in terms of frequency. You don't want to drift to 101.7, because then your audience has a difficult time finding you. In the analogue age, this was considerably more difficult than it is in the digital age. Nowadays, radio stations have digital numbers: touch a screen. Before that, radio dials clicked as you turned them. Before that, radio dials were free-moving, so that you could fine tune the the reception of the signal. Because of frequency drift.

Anyway, engineering a radio frequency required learning the basics of what is called information theory, which, unsurprisingly, is mostly mathematical formulas and also unsurprisingly began in the twentieth century when radio became "wireless."

#One of the central ideas of information theory is how to get the signal—the meaningful information—to exceed the noise. The obvious way of doing that is to make the signal stronger. Simple in some cases. Impossible in others. Signals to the moon or Mars, for example, or all those satellites circling the earth. Sometimes signals just can't be made strong enough.

What to do? The answer is sending redundant signals. You send a whole bunch of weaker signals instead of one strong one. Then, when the signals reach their destination, the many weak signals get combined to make one signal. Thus overcoming the noise.

As with the metaphor of bandwidth, signal-to-noise is a good metaphor for how we communicate—and consume—information.

For example, here at First Unitarian Society, we have lots of redundant signals to communicate information—the website, email newsletters, a listserv, social media, and announcements on Sunday mornings. Redundancy of the signal—the information—is more efficient for getting the word out than having only one strong signal of information.

But #the metaphor of signal-to-noise helps me focus concerning how I access and consume information. And perhaps it can help you to think about it in these terms.

The first order of business is to get rid of the noise. But what is noise? When it comes to making data into information, one person's signal is another person's noise. Therein lies the first hurdle: What's signal and what's noise? CNN? Fox News? MSNBC? NPR? *The New York Times*? *The StarTribune*? *The Guardian*? QAnon?

#How we personally decide what is signal and what is noise creates that information echo chamber that has become such a problem, especially during the pandemic.

There are huge demographic groups involved; there is big money involved; and so advertisers are paying to be part of particular signals. That's what worries organizations such as the World Health Organization, because the infodemic has led to the finding of a recent Pew Research Center survey:

Overall, 29% of U.S. adults say they have a great deal of confidence in medical scientists to act in the best interests of the public, down from 40% who said this in November 2020 . . .*

As all of us have seen, that is a dangerous drop in confidence in the very establishment that has just pulled off what is arguably one of the greatest efforts in human history, which is the development and diffusion of vaccines to stop a deadly worldwide pandemic.

Signal. Noise.

CONCLUSION: Not Getting Hooked

The journalist Johann Hari recently published an article in *The Guardian* (one of my trusted signals) titled "Your Attention Didn't Collapse. It Was Stolen." In that article Hari writes:

Professor Earl Miller, a neuroscientist at Massachusetts Institute of Technology, explained . . . "your brain can only produce one or two thoughts" in your conscious mind at once. That's it. "We're very, very single-minded." We have "very limited cognitive capacity." But we have fallen for an enormous delusion. The average teenager now believes they can follow six forms of media at the same time. When neuroscientists studied this, they found that when people believe they are doing several things at once, they are actually juggling. "They're switching back and forth. They don't notice the switching because their brain sort of papers it over to give a seamless experience of consciousness, but what they're actually doing is switching and reconfiguring their brain moment-to-moment, task-to-task—(and) that comes with a cost."*

Yes, #our attention and focus have been hijacked. We all get hooked. But, curiously enough, it appears to have long been so, and lots of thinkers have thought about this over time. After all, as professor Miller points out, “your brain can only produce one or two thoughts” at once. We have “very limited cognitive capacity.” We are *not* expertly absorbing all the information flying our way. Rather, we are confused and stunned by it, as have been human beings for millennia when they’ve been faced with more than two pieces of information.

#It doesn’t take watching six streaming services at once to overload our brains. It only takes driving down the road listening to the radio and hitting a patch of ice.

The Ancient Roman philosopher Epictetus (c. 50-135 CE) knew what it meant to be overwhelmed with information, and he sent this advice down through the years:

Caretake this moment. Immerse yourself in its particulars. Respond to this person, this challenge, this deed. Quit the evasions. Stop giving yourself needless trouble. It is time to really live; to fully inhabit the situation you happen to be in *now*. You are not some disinterested bystander. Participate. Exert yourself. (The Art of Living)

I hear you saying it, because I’m saying it all the time: “But, wait. I *care* about the planet and its people. I can’t stop watching!”

Epictetus is laying out a plan for surviving the infodemic and for hearing “Baby Shark” for the twelfth time:

1. Realize where you are—which is: here, now.
2. Look around you. Study the physical space you inhabit. This is where you are!
3. Respond to those things that you must respond to.
4. Stop dodging what’s required but don’t “borrow trouble” as the old saying goes.
5. Focus on being alive, here, now.
6. Stop *watching* and start *doing* what you can.

#What truck drivers are doing in Canada may not be something you can physically react to or affect in any manner. In which case, Epictetus has a suggestion: “Keep this in mind: events don’t care about you, so you cannot care about events.” (*Handbook*, 32)

It's hard, I know. #We've all done a lot of doom-scrolling in the past months. I suspect that Epictetus would ask: And how much good has your doom-scrolling done for humanity and the planet?

Perhaps the people who have contributed to those ten billion views of "Baby Shark" have it right after all—One good answer to all the information and misinformation out there is, "Doo Doo Doo Doo Doo." Or, perhaps, a few versus of "Stuck in the Middle with You," as The Eclectics will share in a moment.

SOURCES and Further Reading

Baby Shark.

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