People Are "Buggy": Challenges in Working with Other Humans

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Abstract
Throughout our lives, the statisticians and data scientists have advocated the use of data in making empirically informed and objective decisions. However, individual resistance and organizational silos continue to hamper our desire and efforts to do good with data.
This is further complicated by confusing and/or naïve rhetoric which is often perpetuated even by our own kind.

We challenge some of the key beliefs we have traditionally held as data professionals about barriers to our effectiveness in working with other humans. We further discuss how this changes our approach in working with humans, with implications on collaboration and organizational culture.

Key Words: Collaboration, culture, communication, soft skills, empathy

1. People Are "Buggy"

The data profession has advocated the use of data in making empirically informed and objective decisions. However, individual resistance and organizational silos continue to challenge its mission. It would not be a stretch to say that the vast majority of data professionals have had some experience with pushback from clients or colleagues. This is further complicated by confusing and/or naïve rhetoric which is often perpetuated by data professionals themselves. Dilbert said it best: people are "buggy" (Adams, 2015).
Statisticians and data scientists have historically held certain beliefs and values about their own capabilities as well as about their interactions with our clients and colleagues. Some of these beliefs and values are increasingly being challenged, in part because the world has evolved, and in part because they were always questionable. We highlight some of these ideas that could challenge our view of working with clients and colleagues, to provide some food for thought and potentially reframe how we approach working with our clients and colleagues.

2. Data Not an Objective Representation of the Reality

Data are not an objective representation of the reality from the perspective of a data layperson This does not refer to the errors in the data, which has to do with the contents in the data. The issue is rather with the inappropriate interpretation of the data. This is an important distinction. However, an average person tends to see all data problems more generically.
Data professionals and others who believe in data have been staunch advocates for trusting data as objective facts that inform decision making. For that reason, the notion that there is

any room for interpretation would seem contradictory to a typical layperson. This is exactly the problem: what one *believes* to be fact is often not the objective truth but rather a truth of a different objective. This leads to an interpretation of some other objective truth, that is, an extrapolation by the person consuming the information. Hence, it is *a* truth but not *the* truth.

Statisticians understand this, at least on paper. However, we have not always been successful in explaining this, nor does it naturally align with the practical perspective of a typical data layperson. Data are indeed an objective representation of a reality, but only for a specific purpose and under a specific set of assumptions and conditions. Unfortunately, many of the assumptions and conditions, especially the necessary non-statistical ones for the data to be meaningful, are often too artificial or impractical to an average non-statistician.

Statistically proper and sufficiently justified interpretations of data are often accompanied by a large set of assumptions and conditions. However, a typical non-statistician is more likely to see them as caveats, something more akin to the legal disclaimers or the terms and conditions prevalent in today's world. To an average non-statistician, they are not always realistic or practical. At best, they are a nuisance, and elicits responses similar to when we as consumers are confronted with detailed and complex terms and conditions.

Hence, data often require substantial intervention from intermediaries (such as statisticians) and do not say or do anything on their own. The idea of letting the data speak has been popular in the name of empirical objectivity, but comments such as "that's what the data says" can often be a turnoff to data laypersons. The reality is that it requires a lot of mental processing and effort not only by the data professional but also by the data consumer.

Therefore, from the perspective of a non-statistician, if it is not easy, and if it is valid only under a very specific set of conditions, it might as well be invalid because it requires too much effort. The alternative is much easier: ignore or cherry-pick the conditions and naïvely force the data to fit the need.

A good example is the current argument surrounding the COVID-19 data such as the prevalence rates and the mortality rates that have caused much "debate," to put it diplomatically. Statisticians know there are good reasons for what appear to be blatant inconsistencies, and that they are expected because COVID-19, thankfully, is not a designed experiment. However, the average data layperson does not know this. In fact, we might empathize that from their perspective, it is even worse, because they have been led and implored to believe that data are immutable facts.

Errors in data contents are relatively straightforward to address, because they are generally purely logical. Changing how humans look at data, on the other hand, requires us to rethink how we frame the reality through data for the consumer mindset.

3. Rationality Does Not Sell Well to Humans

The notion that humans are irrational is not new. Even those of us who *think* are rational are often not entirely rational.

People have certain beliefs and value systems, and it takes an effort to accept something rational when it goes against these beliefs and value systems. This can manifest itself in two ways. First is when insisting rationality on those unwilling to accept it causes pushbacks. It is easier to reject rationality instead. Second is the phenomenon of confirmation bias. It is easier to accept something that agrees with what one already thinks or believes. The same "hard data" are frequently used not just by politicians but by average citizens, to support their own view throughout the pandemic.

Perhaps the more subtle aspect of rationality is the effect the difference in perspective between the data professional and the client or collaborator has on the experience by each participant. A recent Gartner webinar (Fenn, and Mesaglio, 2020) explained the challenges with the following analogy.

Consider a doctor who has to deliver bad news, a serious diagnosis for example, to a patient. The doctor's responsibility is to understand and deliver the medical fact; therefore, he or she is on a professional, fundamentally rational, medical journey. The doctor is not trying to be uncaring but rather is simply performing his or her professional duty from the rational perspective. The patient, on the other hand, is on an emotional journey that happens to be medical. Any wait or absence of information adds to the uncertainty that builds up these emotions for the patient. The doctor may be late coming into the exam room for completely innocuous reasons, but the patient does not know this, and it adds to the anxiety. The doctor and the patient have different journeys.

There is a direct parallel between this scenario and the one in which data professionals work. The data professionals are on a fundamentally rational data journey; we are not uncaring. However, our clients and collaborators are on a different journey from that of the data professionals. Their journey is often an emotional one that happens to involve data.

Unfortunately, the instinct of the data professionals upon a pushback can cause clients and collaborators to push back even further. With the best of intentions, the first thought that often comes to mind is that perhaps the clients or colleagues are having difficulties understanding. Consequently, data professionals frequently resort to giving them more data. From the perspective of the clients and collaborators, however, they receive more of what they do not want. It is not effective, because rationality itself is at the heart of the conflict. For the same reason, more data literacy does not lead to a data-oriented culture on its own. It assumes that the organization and the people in it are largely rational.

Finally, data professionals often exacerbate the problem by assuming that they themselves are rational. Data professionals are in the business of promoting rational solutions. However, this simply means that they likely prefer rational things; specifically, this does not necessarily mean that they themselves are rational. That a person likes rationality does not make that person a rational being.

4. Our Biggest Competition

Our biggest competition is the everyday consumer expectations. Historically, data professionals probably have not viewed their role from a competitive standpoint. This does not refer to data professionals competing against each other. Rather, clients and collaborators compare their experience of working with data professionals to all other experiences they have had as consumers.

Data professionals should understand what it is like to be consumers, because they are consumers themselves. Consumers simply want what they want without any of the hassles and judge on the total experience of getting a product or service, not just on the product or service on its own. Getting a rideshare and buying from an online retailer are examples to which many can relate. These consumer experiences frame the client's experience with data professionals, whether they want to or not. That is, in the minds of the clients and collaborators, data professionals compete with other alternatives that are not even data-related.

This includes what happens before and between client touchpoints. As mentioned earlier, the wait is a critical part of the total experience. Consider a typical engagement:

- There is an initial meeting with the client.
- Then, there may be several other meetings or communications with the client.
- Finally, the product is delivered, the project is closed out, and the engagement is completed.

Data professionals have traditionally thought of an engagement as something consisting of these touchpoints during which the rational contents are delivered. However, the client views the engagement not just as a collection of these touchpoints but as the entire process that contains these touchpoints. The client also has experiences from services that have delighted him or her. His or her experience with a data professional is compared against those delightful consumer experiences, albeit not on purpose.

Our experience as consumers shape expectations from professional services. Online retailers tell us the status of the package and when we can expect the delivery. Rideshares tell us where our ride is as we wait and approximately how long it will take to get to us. We are alerted on any changes, and they proactively manage our expectations between touchpoints. All these experiences form a set of tacit expectations for anyone providing a service, including professional services in data.

Furthermore, the periods between touchpoint come with risks over which data professionals do not always have full control. There may be events during these periods that build up anxiety for the clients and collaborators. Whether we like it or not, it becomes a part of the total experience by association.

We have all experienced its effects. For example, we may arrive at the office irritated because of the traffic, and that impacts the rest of the workday. The traffic itself has nothing to do with our workday; the cars did not come out to make our workday miserable. However, we were on our way to work. Unfortunately, it becomes associated with going to work and even creates a downstream impact.

Our experiences as humans are on a continuum; they are not a set of discrete and disconnected events. The client's interaction with a data professional is not an event that is isolated from his or her other experiences as a human. Unfortunately, data professionals often operate as if our clients are "memoryless." The doctor does not know that the patient may recently have had a string of bad luck. However, these experiences cannot be isolated from the news that the patient is about to receive.

5. Implications

It is neither practical nor realistic to prescribe an answer to each of the many situations. A checklist approach does not work well in dealing with humans, because it does not prepare us to deal with an infinite universe of human issues.
The first step is admitting the problem, then we can think about our approach. Specifically, there are three things to keep in mind as we reframe our approach:

- Develop awareness at every opportunity. It is critical to strive to be perceptive of the surrounding or the environment, and most importantly, of the person in front of us. By putting in an effort to be aware and conscious of these factors, we can be mentally prepared to react and adjust. This is neither easy nor straightforward, but it is important to start making the effort.
- Develop empathy. As data professionals, we need to truly understand our clients. This, of course, includes listening to the client, but too often we do not listen well. Stephen Covey explains that we often listen to respond rather than to understand and are too busy developing a response while listening (2013). It is important to set aside responding and listen simply to understand. Then, we can control how we react and respond.
- Rethink the idea of client centricity. This means looking at our clients as consumers, being aware of the total experience of working with data professionals from the consumer perspective. Consumers do not decide what to consume purely based on the quality of the product or the service itself. Rather, consumers select the best available path of least resistance.

The idea that consumers select the best available path of least resistance has been acknowledged by many. Harry Beckwith, a well-known thought leader on sales and marketing, says that prospects do not try to make the best choice but rather the most comfortable choice (1997). Daniel Kahneman, the winner of the Nobel Prize for his work in behavioral economics, refers to the law of least effort:

> The law asserts that, if there are several ways of achieving the same goal, people will eventually gravitate to the least demanding course of action. In the economy of action, effort is a cost, and the acquisition … is driven by the balance of benefits and costs. (2011)

Data professionals compete with these experiences. The selection criteria are no longer just the best data professional or even the best data.

Therefore, to start, we must manage the time before and between client touchpoints and communicate and manage expectations proactively. If the client felt the need to ask, then we have already created anxiety in his or her mind. We have to make it easy for the client and reduce any cognitive strain that could impact his or her willingness. We must also remove anything that could possibly be perceived negatively by our clients from our communications and actions.

These are not big things, but there are a lot of little things that add up. Unfortunately, this is not easy. Rather than going full throttle on selling the benefits of data, we must make sure there are no detriments. In the world in which the goals are often defined in terms of improvement, the idea of focusing on eliminating detriments is highly counterintuitive, but we are reminded of the fact that we work with humans.

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