

How To Circumvent The Seven Deadly Biases

Scott Brave

More is better, right? Wrong. In “The Paradox of Choice: Why More is Less”, Barry Schwartz explains how too many options actually causes more psychological distress than good. Turns out too much choice can lead to unhappiness and even decision paralysis. And nowhere is the overabundance of choice more prevalent than the Internet, where any given website can present us with an overwhelming number of alternatives at once.

The solution is not carrying fewer products or content. One of the beauties of the online world is that there’s something for everyone—every need, every taste. As Chris Anderson explains in his popular book, “You can find everything out here in the Long Tail.” And it is within this Long Tail where you find the content and products that truly meet people’s needs, get them excited, build loyalty and ultimately make more money.

So if carrying less is not the answer, what is? The online world has devised numerous strategies in an attempt to guide users through the forest of options to those products and content that will best meet their needs. Many large sites employ the efforts of skilled merchandisers or editors to help point the way. Armed with aggregated analytics data from online and offline sources, these experts manually choose the right promotions for the right locations—if you like this product, then you’ll surely want this one too. Or perhaps an expert testimonial on a favorite blog helps to assist the decision process.

Others rely on crowd-sourcing techniques such as ratings and reviews to narrow down the choices. If others have rated this product or service highly, then you’ll like it too. Or if you’re on one of the popular social networks, perhaps your friends have had something to say about the new iPhone.

While the above methods can be valuable in navigating the quagmire of choice, they all suffer from one major problem: bias. Bias comes in a number of guises, and we will walk through seven of the most common and detrimental here. In the end there is hope, though, as there are new technologies capable of largely evading these biases.

Personal Bias

The human brain fundamentally approaches the world in a self-centered way; we constantly see the world through the filter of our past experiences and knowledge as well as our own interests and attitudes. Sure, we are capable of sympathy, but it is extremely challenging and in truth impossible given that we do not have access to all of the information that drives another person’s attitudes and behaviors. As a result, we are often wrong when we attempt to predict what another person or group of people will find interest in. No “expert” is immune to personal bias when predicting the needs of a user community. Data may help a bit, but it can be misleading unless it truly reflects and represents the needs and wants of a community—and here too, personal biases can creep into the interpretation of that data.

One way to mitigate the problem is to bring in a group of potential customers and run a focus group. Though this can help remove the biases of the expert, members of a focus group suffer from personal bias as well. You will never have a truly representative sample of people and so will be swayed by the luck of the draw on the attitudes of the specific people you have chosen. Additionally, care must be taken to ensure that focus group members are not influencing one another and simply reflecting the most dominant opinion in the group. The bottom line is, whenever you use a

small sample of the population—be it an expert or a focus group—to predict the greater population, you need to recognize the influence of personal bias.

Squeaky Wheel Bias

One of the other problems with using experts or focus groups is limited resources. Sure you may be able to guess what the most popular product will be in each category for example, but how do you predict the right recommended alternative for each of tens of thousands of products? Crowd-sourcing, such as ratings and reviews, has become a popular technique for creating recommendations online because it leverages the thousands of website visitors to tell you what they think. In theory this approach has few flaws: if every single person who came to the site weighed in with their opinion on every product, you would get a perfect representation of consumer attitudes.

The problem, of course, is that not everyone contributes. Even that would be fine if the ones who did were numerous enough for statistical significance and were also a good representation of the community. Unfortunately, however, that's not the case. The tendency is for certain kinds of people to make their voice heard, particularly when effort is involved (such as in a review). One is personality: there are some people who simply enjoy having their voice heard and may also enjoy helping others. These people can be seen as the “connectors” in the online world—people who like to get the word out there. This is really just another example of personal bias creeping in.

The other arguably more misleading group of people who cause problems is what I like to call the “squeaky wheels”. This could be those people who simply like to complain. But it can also be any one of us (temporarily, of course) when we have a negative experience. Negative experiences tend to stand out more than positive ones and also encourage us to take action. This is an evolutionary response that we can't be blamed for. When things are good, we tend to become more passive since no change is needed. But when things go wrong, we do everything we can to take control of the situation which sometimes simply involves lashing out with a scathing review.

Overly positive reviews happen too, sometimes organically, and sometimes in response to the overly negative ones. It may not be fair to call these squeaky wheels, but again what happens is that you get a representation of the community that is biased to the two extremes. Five scathing reviews, three glowing ones, a few people who just like to be heard. 99% of the population remains unspoken for, they could be leaning positive or negative, you'd never know. Even as consumers we tend to be very influenced by these, but do we really know where the silent majority of the population is leaning? Is it just luck that the ratio is 5-to-3 and not 3-to-5?

Contextual Bias

Another challenge with relying on explicit user feedback is contextual bias. Imagine, for example, reviews of a digital camera. One person might say that the “resolution is incredible” and another that “resolution sucks”. They may both be right. Perhaps one person uploads their pictures to the web, where the resolution is great, and another likes to print them out where higher resolution is needed. The two reviewers are using the camera and rating it from two different contexts. Maybe one of them was referring to daytime photo taking and another nighttime. Ratings have no way of reflecting such nuances and reviews only do if the person writing it is very aware of their contextual bias. People often have very different needs and desires for the same object depending on how they intend to use it.

Emotional Bias

Emotional bias can creep up in subtle ways. Not only are we continually biased based on our past history and experience, we are also biased by how we feel. And how we feel can change day by day or even minute by minute depending on a variety of external and internal influences. Our emotional state colors our perception and experience of everything we come in contact with, biasing our responses and opinions. We have all had the experience of disliking a movie when we were in a bad mood only to discover months later that it's actually quite good.

If we are providing feedback that is simultaneous with our experience of a product or service, hopefully the experience itself will be powerful enough to override our prevailing mood. However, this is often not the case. Often, feedback is provided at some later point. Our emotional state at the time of evaluation can have a major influence on our evaluation. Happy people, for example, are not merely inclined toward more positive reviews, but can actually recall past experiences differently based on current mood. This is also part of the reason why asking people what they think is so often a poor predictor of what they actually do.

Gaming Bias

There's something even worse than squeaky wheels and emotional biases; at least these afflicted users are honest. Another type of reviewer is someone who is "gaming" the system. Sometimes such gaming is malicious, but often it's altruistic. While writing this article I went onto Amazon to look at the reviews of a book I co-authored called "Wired for Speech." The first one was very positive; perhaps someone my coauthor knows. But I have no doubts about the second 5-star review, titled "Amazing Insight." To my surprise, it was from my dad! Enough said.

Gaming such as this is actually the rule, rather than the exception on Amazon and other media sites where products have authors or artists and personal connections abound. But it happens at the corporate level as well where companies like to bump up ratings on their own products and sometimes even bump them down on their competitors. I admit to having given 5-stars to articles on my company... heck, if I can do it for this one I will. Go ahead, try it out, give this five stars if you can!

Time Delay Bias

A problem that layers on top of all the above has to do with time. Whether expert-driven or crowd-sourcing, feedback is never completely up-to-date. For example, imagine the merchandiser who looks at all sorts of reports and tries to guess what the crowd is looking for. By the time the data is collected and analyzed and the necessary changes made to the website, the recommendations may be wholly inaccurate. Trends and fads come and go in a matter of weeks if not days sometimes. News stories rise and fall in popularity in a matter of hours or minutes; it is nearly impossible to keep up unless you use a technology that automatically adapts recommendations in real-time.

Ratings and reviews can suffer from similar time-delay problems. Imagine a scathing review of a small bed-and-breakfast that the owner has made changes to accommodate and therefore is no longer valid. My wife and I stayed at a bed-and-breakfast in New Zealand where this is precisely what happened. The owner was distraught and felt it had a negative impact on his business even though he had made all the changes he could to accommodate.

Multiplier Bias

There is yet another issue that can cause unnoticed bias in both explicit and implicit reviews. What happens when you read good reviews of a movie: you go see it. What if it's bad? You tell others not to see it. Fine. Now let's say instead that everyone's movie decision relied solely on the basis of how many other people have seen it or how much money it has made. Some people see it, that encourages more to see it, which encourages more to see it, and you get into a positive feedback loop. The situation degrades into "herd behavior" and effectively becomes random group movements. This can happen any time the feedback mechanism is tied to the action itself. So for example, recommending products based on which are purchased most often. The more who purchase it, the more encouraged to purchase it. Even if mechanisms are in place to take return into account, not everyone returns a bad product. Things become self-fulfilling.

Recommendation systems based solely on clicks and page views have a similar problem. The more who click on a page, the more others are encouraged to do the same. It quickly degrades into randomness.

Tapping the Wisdom of your Silent Majority

So, with all of this bias, should we completely avoid strategies like expert recommendations and user-generated reviews? Not necessarily. If done with appropriate care, merchandizing and editorializing can be helpful guides, particularly on popular areas of a website or when dealing with “head” products where user needs are easier to predict. Ratings and reviews, though potentially misleading, have become an expected part of the user experience online and encourage deeper engagement with and consideration of products and services.

There is another strategy, however, which sidesteps bias and provides both an accurate and comprehensive window into user need and interest. It leverages the wealth of information embedded in the every-day online behaviors of website visitors. Every successful or failed search, every page visited or revisited, every purchase or abandoned cart, carries with it valuable information that is typically ignored or relegated to reports with unclear consequence. These natural online behaviors represent your true and unbiased community—the “silent majority” of your website visitors that normally go unspoken for.

A Collective Intelligence Platform which analyzes the patterns embedded in these implicit community behaviors, and then automatically modifies both on-page recommendation links as well as search results, can effectively tap into this community wisdom. When a user comes to a website with a particular need or interest, the platform can leverage the experiences of the entire visitor community to identify other like-minded peers and immediately surface the products and content that have proven valuable in the past.

Watch what people do (not what they say), include everyone, and pay particular attention to context. That is what Behavioral Science has always told us is the best way to understand a community, their needs, and interests. Bias may never be 100% avoidable, but by tapping into the wisdom of your silent majority, it is possible to guide visitors to content or products that satisfy their needs much faster than ever before.

About Scott Brave

Scott is a founder and CTO of Baynote, Inc. Prior to Baynote, he was a postdoctoral scholar at Stanford University and served as lab manager for the CHIME (Communication between Humans and Interactive Media) Lab. Scott is an inventor of six patents and co-author of over 25 publications in the areas of human-computer interaction and artificial intelligence. Scott is also an Editor of the “International Journal of Human-Computer Studies” (Amsterdam: Elsevier) and co-author of “Wired for speech: How voice activates and advances the human-computer relationship” (Cambridge, MA: MIT Press). Scott received his Ph.D. in Human-Computer Interaction, and B.S. in Computer Systems Engineering from Stanford University, and his Master’s from the MIT Media Lab.