

Ideas which are too simple - dumbing down

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Simple Ideas home page:

<http://woodm.myweb.port.ac.uk/SL/occam.htm>

Obviously, the simpler ideas are the better, provided the simple version is at least as good as the complicated version. However, the difficulty is that the simple version may sometimes be a lot worse: it may be a very rough approximation, misleading or simply wrong. This can reasonably be described as "dumbing down".

Statements like "The Swiss are much happier than Nigerians", or "Exposing yourself to strong sunlight is a bad idea" or "There are two types of social research - quantitative and qualitative" are - for many purposes - oversimplified and potentially very misleading. Some Swiss are doubtless much more miserable than some Nigerians; the generalisation just refers to averages. People who don't expose themselves to any sunlight run the risk of vitamin D deficiency. And if you think there are only two types of social research you will probably identify the analysis of subjective feelings with the qualitative pole, ignoring the fact that there is a whole industry based on assessing subjective feeling on 1-5 scales analysed with horrendously complicated, quantitative, statistics.

Politicians need neat soundbites like "we must balance the budget" because "the economy is like a household", which of course it isn't. This is an over-simplification, but any more nuanced view would be unlikely to have as much impact with the electorate. Which is a problem.

In 2008 the world economy plunged into a crisis triggered, according to Nate Silver (*The signal and the noise*), largely by over-simplified, and horribly inaccurate, measures of risk. Banks and other financial institutions buy and sell securities like mortgages, and they obviously need an estimate of the risk of losing their money on these transactions. In practice, estimating these levels of risk is a complicated task, so they simplify the problem by using the assessments of rating agencies - these organisations categorise risk into bands like AAA, AA. AAA is intended to mean a probability of default of 0.12%, but during the crisis 28% of these securities defaulted. This led to losses far greater than expected, and to the necessity to bail the banks out and all the other consequences of the crisis.

So, even organisations whose job was to manage financial risk felt the need to use simplified measures provided by a third party. And the reason that the risk assessment were wrong was that the ratings agencies over-simplified the task of making these assessments. They made an assumption - that the component risks were independent of each other (link to come) - which was a long way from the truth, leading to a massive under-estimate of the risk of defaulting. This was an elementary mistake, but without it, the task of assessing risk becomes difficult and the answers become vaguer, so the temptation to make the simplifying assumption was probably overwhelming. (There are other, even less creditable, reasons behind the error: see Nate Silver's book.)

These examples illustrate complex situations where the desire to simplify may lead us seriously astray. On the other side of the coin, scientists are always on the lookout for simple but powerful ways of viewing the world like Newton's laws of motion, or Einstein's $E=mc^2$ (although what is simple to a specialist may seem anything but to an outsider), and a few pundits such as Edward de Bono (<http://www.debono.com/business-seminars/simplicity/>) propose regarding simplicity as a key aim in all walks of life. First aid is an area where simplicity is obviously paramount, particularly if the first aider has to learn on the job. Acronyms like DR ABC (Danger Response, Airway Breathing Circulation - <http://www.sja.org.uk/sja/first-aid-advice/what-to-do-as-a-first-aider/how-to-assess-acasualty/the-primary-survey.aspx>) are designed to provide essential information as quickly as possible.

There are many ways in which we can oversimplify things but it is worth mentioning a couple, both of which seem to appeal to the academic mindset. We can over-extend or oversimplify appealing concepts. I think the concept of truth is often extended way past its useful range (<http://scepticalacademic.blogspot.co.uk/2014/08/the-cult-of-truth.html>). The concept of simplicity itself is far more multifaceted and problematic than my use of it as a slogan might make it appear.

Any sort of measurement - whether a number measurement, or a subdivision into two or more categories (simple / complex, qualitative / quantitative, left wing / right wing, heavy drinker / light drinker / teetotaller, happiness measured as a number) - runs a serious, and often unacknowledged, risk of over-simplification. Simplification is a powerful and seductive tool of thought, but we need to be very careful.

Over-simplification is certainly a problem. But the cause is often that a more appropriate understanding is too complicated, so we may have little option but to go for the crude and unhelpful over-simplification. Complicated ideas may push us into dumbing down. The remedy is sensible and thoughtful simplification - for which I use the term *dumbing up* is more appropriate.