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Super Crunchers: The Future of Intuition and Expertise

Ian Ayres argues for the importance of how mathematicians and reporters relate their statistical findings in the final chapter of his book, *Super Crunchers*. Historically, basic statistics have been relayed to the general public without enough context, whether it be for presidential elections, disease diagnosis, or child due dates. Where one may be informed of the average number of, say, days you will be pregnant, one is not usually informed of the range at which this may fluctuate. In other words, the information tends to include the mean, but not the 95% confidence interval. This can be extremely stressful for families who are expecting a child on one day but actually comes two weeks early or two weeks late, when they could have planned for that from the beginning.

Who is the culprit for providing this misinformation: the statisticians or the reporters? Now, we can blame the doctor that told the family their child’s due date, but he got the information from an algorithm that dumped out a number of days to him. The person that is actually responsible is the statistician who made the algorithm. The statistician needs to be able to relate his or her findings to the general public, including all of the information in an understandable way. He or she needs to realize what might confuse the rest of the world, even doctors. For instance, omit words such as ‘standard deviation’ and ‘margin of error’; rather, provide a probabilistic range. In the case of child due dates, the model should provide the doctor with the range in which the baby might come and whether or not it will more likely be at the beginning (skewed left), middle (no-skew), or end (skewed right) of that range. We can’t blame the doctors and reporters for not understanding the information they’re giving; instead, we have to set them up for success.

This protocol is really important in our current time. Due to COVID-19, we are having multiple probabilities thrown at us. “You are XX% likely to transmit covid if you do not social distance.” “You are XX% likely to transmit covid if you do not wear a mask.” “You are XX% likely to get covid if you get the vaccine.” These numbers are very relative to their range, and it is important for us to be aware that we are not being given the full set of information. While we may never be given the range, we can be aware to not accept the number they give us as 100% confidence. In fact, the range itself is only 95% confidence. In other words, takeaways from this chapter are twofold. If you are a statistician, be sure to relate the information in the most simplistic of terms so that the ‘telephone effect’ doesn’t take place. If you are the general public, be sure to ingest statistics very carefully, being aware that there is a 95% confidence range that that changes the meaning of the numbers.