

The Elephant in the Room- Dispelling the Fear of Statistics

27/06/2024



Image: FSB Marketing using Adobe and Adobe Firefly.

By [Dr Georgios Kourdounoulis](#), Lecturer in Counselling, FSB Croydon

Glancing at the Elephant

I remember the first time I encountered statistics during my first year as an undergraduate in psychology. The predominant feeling experienced by me and my fellow students was not one of joy or excitement. "Why do we need to undertake such a module?" we wondered. "This is psychology, not mathematics!"

Well, we soon found out that psychology is not only about gaining knowledge on established theories of mind and behavior but also about designing and conducting our own studies on the aforementioned topics. We also found out, that statistics are integral to this approach and hence a core module for most psychology-related degrees. I later discovered from students in other departments that statistics appeared in other disciplines such as health and business.

Statistics, as you may be aware, is a branch of mathematics which pertains to gathering, analysing, interpreting, and presenting empirical data. Here in FSB, statistics appear in modules that you have undertaken or that you will be undertaking in the future. These are Basic Statistics and ICT, Managing Data, and Social Research Methods. These modules appear both in the Business and Management and the Health and Social Care programmes. Yes, most undergraduate students are afraid of statistics. This has been documented by research (Siew, McCartney, and Vitevitch, 2019; Hunt et al., 2023). In fact, anxiety about statistics has been shown to negatively correlate with self-predicted exam performance (Onwuegbuzie and Seaman, 1995). However, below I will explain why you should fear not!

Understanding the Elephant

But why are some students scared of statistics in the first place? One answer has to do with their previous experience of mathematics at college or school. According to National Numeracy (2023), math anxiety in pupils is caused by the nature of the assessment of the module. Mathematics requires students to sit exams, provide specific answers, and perform quick and correct calculations. Therefore, there is pressure to think fast, which comes with fear of judgment by the

teacher and other pupils. This is a reasonable explanation, but in my opinion, there is more than meets the eye here.

It is easier to understand something in a code that we recognise or in a code that we are familiar with. In fact, one famous theory in social psychology, the theory of social representations, argues that all forms of social fear can be explained by our unfamiliarity with a new social phenomenon (Moscovici and Duveen, 2001). To understand this, think of your encounter with a new lecturer. In the beginning, you and your group might have doubts about whether he/she will be appropriate for your group or whether he/she is strict or easy-going, etc. However, after some time, you start to feel more and more comfortable, and your initial worries are dispelled. This is because, in line with the theory of social representations, you have managed to transform an unfamiliar reality into a familiar one. The argument here is that most of our fear is fear of the unfamiliar or the unknown, and it dissipates when we engage in the above transformative process. By the same token, statistics are the unfamiliar which we need to turn into something familiar; however, the process is more arduous compared to that of encountering a new lecturer.

This is because of the different code or languages that we have to learn. The main faculty we possess for learning is typically language. That is why, for example, we do not feel fear of learning history, literature, or theories of any type. The knowledge is conveyed in a familiar code. On the other hand, statistics demand that we learn a new language almost from scratch. We have to understand what variables are, description of data, graphs, tests, and inference. This can indeed be intimidating.

Facing the Elephant Head On

But what can we do? Which strategies should we employ to

mitigate this fear? Firstly, we need to do away with the competitive environment (Marson, 2007). Here at FSB, this is understood and implemented by all of our lecturers. Do not feel pressured to provide quick and correct answers, and do not compare yourselves with the rest of your group. Learning occurs at a different pace for everyone, and this does not reflect your intelligence. Psychology argues that there are several types of intelligence (see Gardner, 1999). Some examples are linguistic intelligence (good with language), logical-mathematical intelligence (good with numbers), spatial intelligence (good with pictures/space), kinesthetic intelligence (good with body movements), and musical intelligence (good with music). Therefore, as humans, we have different inclinations towards these types. One can be great with music but not so good at dancing and so on. The argument here is that even when you observe another student understanding statistics faster, that does not mean that you are lacking in intelligence. It only means that you require a different pace for understanding the topic. Thus, please take this into account when studying statistics.

A second strategy we can employ is to understand the purpose of learning statistics. Druggeri et al. (2008) found that having a good understanding of what statistics entail, along with having encouragement pertaining to confidence issues, were more important factors in reducing anxiety about statistics in psychology students compared to changing the teaching methods (e.g., using quizzes, multiple-choice questions, etc.). Therefore, I want to urge you to talk to your lecturer anytime you face a lack of confidence or feel anxious. They will guide you and help you, as they have experienced similar anxiety in the past. Research also shows that asking for immediate feedback and repeating the procedures by working the problem backwards is also important in learning statistics (Marson, 2007).

Finally, think about the value of learning statistics; be it

business or health, you will need to understand reports, graphs, histograms, etc. You will also need to gather, evaluate, and interpret data. These can be data regarding a SWOT analysis, making predictions about shares, or conducting a customer satisfaction survey. If you are in health, you will need to evaluate or produce a patient satisfaction survey or an intervention study. I am not discussing the above to scare you but to instil some extra motivation, as by developing these skills, your employability will skyrocket! Thus, think of the benefits and be persistent with statistics; it's a language well worth learning about and you are more than capable of learning it.

Here at FSB, relevant workshops are being prepared by our Research Centre, which you can attend via Teams. Moreover, our Academic Support department can provide assistance on statistics-related modules. Thus, you will be well-supported in dispelling your fear and come to love statistics as I did.

References

Doorn, D.J. and O'Brien, M. (2007). Assessing the Gains from Concept Mapping in Introductory Statistics. *International Journal for the Scholarship of Teaching and Learning*, 1(2). doi:<https://doi.org/10.20429/ijsotl.2007.010219>.

Druggeri, K., Dempster, M., Hanna, D. and Cleary, C. (2008). Experiences and Expectations: The Real Reason Nobody Likes Stats. *Psychology Teaching Review*, [online] 14(2), pp.75–83. Available at: <https://eric.ed.gov/?id=EJ876504>.

Gardner, H. (1999). *Intelligence reframed: multiple intelligences for the 21st century*. New York: Basic Books.

Hunt, B.W., Mari, T., Knibb, G., Christiansen, P. and Jones, A. (2023). Statistics anxiety and predictions of exam performance in UK psychology students. *PLOS ONE*, 18(8), pp.e0290467–e0290467.

doi:<https://doi.org/10.1371/journal.pone.0290467>.

Marson, S.M. (2007). Three Empirical Strategies for Teaching Statistics. *Journal of Teaching in Social Work*, 27(3-4), pp.199–213. doi:https://doi.org/10.1300/j067v27n03_13.

Moscovici, S. and Duveen, G. (2001). *Social representations: explorations in social psychology*. New York: New York University Press.

National Numeracy (2023). *What is maths anxiety? | National Numeracy*. [online] www.nationalnumeracy.org.uk. Available at: <https://www.nationalnumeracy.org.uk/what-issue/about-maths-anxiety>.

Onwuegbuzie, A.J. and Seaman, M.A. (1995). The Effect of Time Constraints and Statistics Test Anxiety on Test Performance in a Statistics Course. *The Journal of Experimental Education*, 63(2), pp.115–124. doi:<https://doi.org/10.1080/00220973.1995.9943816>.

Siew, C.S.Q., McCartney, M.J. and Vitevitch, M.S. (2019). Using network science to understand statistics anxiety among college students. *Scholarship of Teaching and Learning in Psychology*, 5(1), pp.75–89. doi:<https://doi.org/10.1037/stl0000133>.