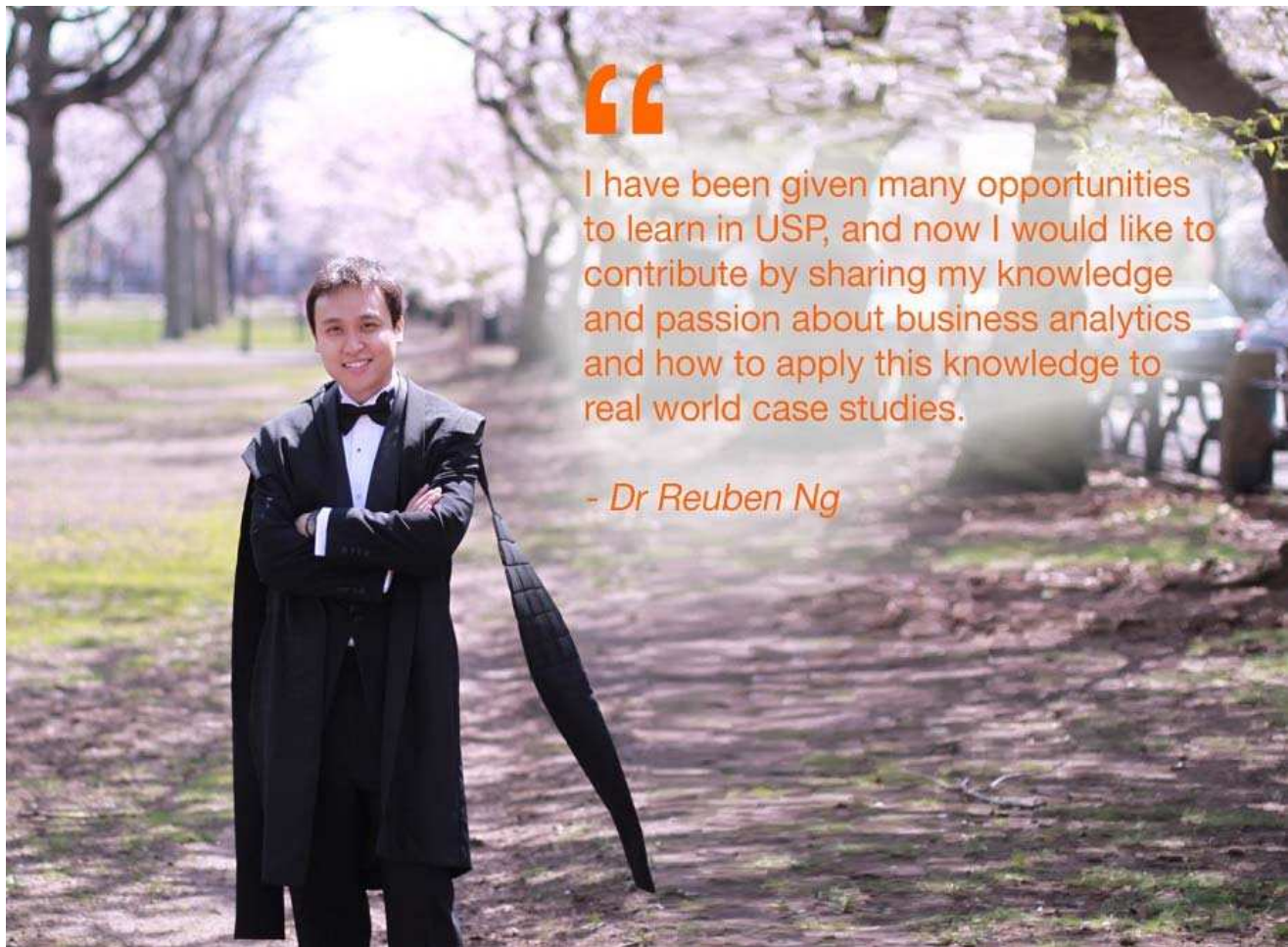


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Alum Dr Reuben Ng: Imparting the Science and Art of Business Analytics at USP

By Ong Lishan (Industrial and Systems Engineering + USP, Class of 2016)
Lishan is a student writer for USP Highlights.

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Dr Reuben Ng (Psychology + USP, Class of 2006) identifies as a "behavioural scientist, but an undisciplined one". From his colourful and rich academic history, it is not difficult to see why.

He graduated from NUS with a Psychology degree and a Business minor. As an undergraduate, he was the youngest and first undergraduate to win the Seisoh Sukemun/Bruce Bain Early Career Research Award (2005-2006), typically awarded to professors, for his research on building organisational resilience as a way for security forces to cope with organisational stress. He then pursued his Masters in Psychology at the Nanyang Technological University, where he worked on understanding depression, anxiety and increasing resilience in teenagers, as well as understanding human attraction to evaluate the effectiveness of dating programmes at dating agencies.

Wanting a change in his worldview, he headed overseas for his Masters in Management Research at Oxford University where he worked on strategies to develop cross-cultural competencies of CEOs, consultants and diplomats. His research was recognised by Oxford through the Nautilus Award, and the Dan Gowler Prize for the Best Dissertation in Management. At the national level, he was the youngest and first non-British recipient of UK's Economic and Social Research Council (ESRC) Neville Butler Memorial Prize for Longitudinal Studies (runner-up) awarded at the Houses of Parliament in London.

He then spent four years to complete his PhD in Epidemiology and Public Health at Yale University, with a focus on successful aging. He was the first Singaporean and Oxonian to receive the International Fulbright Science and Technology Award, which funded his PhD. His research was further recognised by awards from the American Psychological Association and the US National Institute of Aging.

The common thread through these seemingly disparate endeavours is data analytics. He said, "I have always been dealing with data. In psychology experiments, I use data to test which intervention works. In Business school, we worked with textual data and sentiment analysis. In Public Health, I had to understand insights from large pools of population-wide, merged data."



Reuben spoke on the psychological promoters of longevity at the Annual Singapore Conference on Ageing in 2012.

His Passion for Business Analytics

Come full circle, Reuben is back at USP as an adjunct faculty, teaching "[UQR2213: The Science and Art of Business Analytics](#)".

Drawing upon his research perspective and background, he also seeks to impact organisations directly via his work as a management consultant. He shared, “I have been given many opportunities to learn in USP, and now I would like to contribute by sharing my knowledge and passion about business analytics and how to apply this knowledge to real world case studies.”

His module takes a two-fold look at Business Analytics. The “science” of it is about using a systematic data-driven approach to solve business problems, while the “art” is about implementing solutions and managing change.

According to Reuben, a consulting project is successful if people get both the science and the art right. He said, “A lot of people get training in the former but not the latter. Using the client’s data to come up with insights that are best for them is the tricky part. What are best practices may not be the best for the client, so a partnership is important.”

Reuben’s module may be new, but Big Data is certainly not. Big Data has seen rapid growth and wide application across industries, be it healthcare, oil and gas or government, and across functions, such as operations, supply chain or finance. More companies are seeing its value and are embracing it as a way to propel their organisations forward.

In fact, business analytics can be applied to human resource management (often seen as a softer, qualitative subject), in areas such as recruiting, performance evaluation, leadership, hiring, promotion and compensation. Reuben explained that people analytics can be used to distill the drivers of and pathways to attrition – across different industries, and also down to individual risk factors. With analytics, firms can be predictive and “proactive, rather than reactive.”

He added, “If you know in advance who is going to quit, and when he/she is going to quit, then you can intervene accordingly. If this is a person you want to keep, then you have say, one year, to keep this person; if this is someone you don’t want to keep, then you have time to find a replacement.”

But that is just the science of business analytics. The art of business analytics concerns human elements, such as how we interpret data and what resulting actions and decisions we take. “If an employee has an 80% chance of leaving, but he is valuable to the company, then his supervisor is likely to spend the money required to keep him. But if an employee has a 40% chance of leaving, does his supervisor require approval from a higher-up to keep him?”

More about His USP Class

So why should you take Reuben’s USP class?

“As someone who works in the industry, I can share what I have done and what works. The class also requires students to think through difficult problems. In consulting, clients come to us because they have a problem that is too difficult to solve,” said Reuben.

Another draw of the module is the use of diverse learning methods; students get to practise the skills business analytics consultants use on their jobs. The first class assignment, now over, was an opinion-editorial on communicating scientific knowledge in a layman way.

I spoke to two students with positive feedback on Reuben’s module.

Lydia Tan (Accountancy + USP, Class of 2016) did a creative piece on using consumer analytics and sentiment analysis to develop new food products. She shared, “My business analytics class in Business School focused more on the tools applied to the manufacturing and process stream context, such as linear optimisation. In contrast, this USP class allowed me to look at analytics in a more introspective manner and from a perspective that is more relevant to daily life.”

The second class assignment was an individual hackathon requiring students to solve a business case through collating and analysing data. (Reuben calls this the science part. He wants students to “apply and struggle individually” before working on the group project). According to Joey Ong (Political Science + USP, Class of 2017), Reuben provides guidance, but does not handhold the class.

“Dr Ng wants us to struggle with the larger questions of how to interpret and communicate the data, rather than the technical difficulty, since the technical aspects cannot be fully covered in one semester,” said Joey.

According to Joey, the technical difficulty is low, and that evens the playing field, as some students may have prior experience in business analytics or may be more mathematically inclined. “Dr Ng will first explain the tools that are used in the market, then the fundamental ideas behind them. This way, we can see the similarities when we use Excel (to do analyses). He reduces the concepts into a simple form.”

Lydia added, “Dr Ng ties stories into analytics and his stories come to life with his real life experiences. There is independent learning but we are also being coached. Dr Ng is an approachable mentor.”

The final group project will focus on application. Student will work in multi-disciplinary engagement teams to present how they plan to use analytics to solve specific industry or functional problems.

Applying Knowledge to the Real World

From academia to consulting, Reuben's immense passion in applying knowledge to make concrete impact is inspiring. He said, “I don't want to be restricted to just the publication. The academia and consulting fields don't always get to talk to each other due to fundamental differences. In academia, the start point is a research question; in consulting, it's the business problem. In academia, the end point is the publication; in consulting, it's the solution.”

But Reuben quickly explained how both fields are in fact synergistic. “Through consulting, I encounter complex problems that can be adapted into novel research questions. Through research, I write papers that can be applied in my work.”

Today, Reuben publishes on ageing issues and behavioural sciences. He is also writing a book on business analytics and collaborating with colleagues in the medical sciences. (*He holds a visiting research scientist position at Yale University.*)

He stressed, “I am thankful to USP for sending me on the WorldSmart Leadership Programme even though my grades weren't good, which allowed me to take a semester off to travel. These were life-changing experiences; there was so much learning beyond the classroom. The teachers and programme were entrepreneurial and dedicated, which taught me to give things my all and go beyond my comfort zone, such as going from research to consulting.”



Reuben prepared food at a soup kitchen for the homeless in Los Angeles, USA as part of the WorldSmart Leadership Programme where he travelled through 7 countries with 50 participants from 28 countries. He represented Singapore in this programme during his undergraduate time at USP.

Indeed, Reuben is the hallmark of a life-long learner who has a good grasp of qualitative and quantitative problem-solving skills. His Masters programme in Oxford saw him conduct ethnographic studies by staying with several communities to understand consumer behaviour, instead of merely doing quantitative marketing models. The stint demonstrated the value of doing in-depth focus groups and interviews to understand client needs.

As USP students, we are empowered with breadth and depth of knowledge, and the privilege of being in a creative, self-driven environment with plenty of opportunities to learn from external speakers, professors, international programmes and our classmates. It is our utmost responsibility to use our experiences to make a positive difference.

We hope Reuben's multidisciplinary thinking, curiosity and tenacity will continue to serve him and others well. We are more than glad he is back with USP.

3 November 2015

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