

African Doctoral Academy (ADA) Winter School

Monday 6 July 2015, Wilcocks Building, Stellenbosch University

Week 2 Opening by Prof Wim de Villiers, SU Rector and Vice-Chancellor

It's an honour for me to speak at this Winter School, attended by PhD students and researchers from institutions across our country and continent, as well as lecturers or presenters from around the world.

Well done to all of you for putting in the effort to sharpen your scholarly skills and up your academic game. I have no doubt it will pay off.

Doctoral scholarship is a critical requirement for the advancement of higher education and research production ... particularly on our continent in need of high-level skills for inclusion in the global knowledge economy. So, Stellenbosch University is very proud of its African Doctoral Academy.

Manuel Castells (1993) describes knowledge and information as the new electricity of the economy. This explains why there is growing enthusiasm for higher education world-wide – especially in the developing world. This also explains why the PhD – the top university training product – has become so sought after (Gorman 2013).

The high status accorded to the doctorate is nothing new. More than 100 years ago – in 1903 to be precise – Marie Curie won a Nobel Prize in Physics for her pioneering research on radioactivity, which she had written up in her doctoral thesis earlier that same year.

Her doctoral thesis contains the entire kernel of her most important work. In a single document it embodies an area of research that had otherwise been described only piecemeal, if at all, in journal articles. Her thesis is the result of a dedicated scientist taking time out from her research to create a snapshot of a rapidly changing field at a crucial moment in history.

So influential was her doctorate that it won her a second Nobel Prize – this time for Chemistry, in 1911 – for discovering two new elements, radium and polonium, also written up in her 1903 thesis.

Now, that's research impact! Which is also my challenge to all of you. I want to be able to trace back several Nobel Prizes to this Winter School!

There's another prize that sounds quite similar ... the "Ig Nobel Prize", which are a parody of the Nobel Prize. These are given each year for "unusual or trivial" achievements in scientific research. The stated aim of the prizes is to honour achievements "that first make people laugh, and then make them think".

Some researchers won the "Ig Nobel" Probability Prize for making two related discoveries: First, "that the longer a cow has been lying down, the more likely that cow will soon stand up"; and second, "that once a cow stands up, you cannot easily predict how soon that cow will lie down again".

And the "Ig Nobel" Psychology Prize went to researchers who confirmed, by experiment, "that people who think they are drunk also think they are attractive".

But my favourite is the “Ig Nobel” Literature Prize awarded to the US Government General Accountability Office for issuing “a report about reports about reports that recommends the preparation of a report about the report about reports about reports”.

We laugh because these examples are indeed “trivial”. Something that’s no laughing matter at all, however, is pseudoscience.

Take, for instance, the bogus study in 1998 by Dr Andrew Wakefield which purported to show that the Measles-Mumps-Rubella (MMR) vaccine caused autism. Despite being debunked, Wakefield's false science was seized upon by “celebrities” like Jenny McCarthy and by some religious leaders, who discouraged parents from having their children vaccinated.

The MMR vaccine – invented by Maurice Hilleman in 1993 – has been credited with saving many millions of lives. In the United States, it led to a 99% reduction in the number of measles cases ... until pseudoscience started sowing doubt.

Now the dangerous virus is back because many parents decide to not vaccinate their child. In 2014, there were 644 cases of measles in the U.S., by far the most in recent years. That’s also impact – though of the negative kind, and this impact is not “research based” because it is not real science.

There are two basic sets of requirements for scientific research: On the one hand, it must be reliable, accurate, valid. This speaks to the methods we use; and the need for science to be public so that our peers can verify/falsify our results.

On the other hand scientific research must be relevant, meaningful. This refers to the applicability of research, its usefulness. Trivial research is not very noble, as we’ve seen.

If we look at the examples mentioned, we can say that the research about cows lying down and standing up might be reliable, but it’s not very relevant – at least not outside of the dairy industry. On the other hand, many people find Wakefield’s research about the MMR vaccine very relevant, but it is definitely not reliable because it is not science at all, but pseudoscience.

Which brings us back to Madame Curie’s PhD thesis. It set a benchmark in research because it produced both reliable and relevant knowledge. Let us all aspire to that. I wish you well in your studies and research and careers.

Have a fruitful Winter School. Thank you.

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