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A RESEARCHER'S DISCIPLINE

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ABSTRACT

Can a PhD be of even greater benefit to a candidate than just the award of the PhD? This paper argues yes. A PhD is a process of learning by doing, during which the successful candidate discovers what being a researcher is all about, and how to write academically. The PhD dissertation is the artifact that demonstrates that the process has been undertaken successfully. It might appear that this is as much as you can expect from a PhD. Upon completion and successful defense, the intensity of focus and effort in the last stages often leaves the successful candidate almost bereft, so all consuming has this been. It would be asking too much perhaps to want more. This paper sets out to show that more should be required, not for the PhD itself, but to benefit the candidate even more. The question is how?

1 WHY I WANT TO GIVE THIS TALK AND/OR THE PAPER TO BE READ

I have always been interested in people, I find them endlessly fascinating. For example; most people operate well below their potential; many people are 'frightened' or in 'fear', but of what? As a PhD supervisor (54 completions at the time of writing) and increasingly as my career progressed, as an academic manager, I have had the privilege to work with a large number of intelligent people. They have come from all around the world, from all races, creeds, religions, colors, ages and sexual preferences as far as I can tell. What I have learnt with them (I believe the learning experience is always two-way) are what one might call lessons of life.

I doubt that I can 'prove' much of what is in this paper, but it is all based on a wealth of advice. And if it could be proved, would it be very interesting? A theory is after all, the regulation of knowledge about something that has been historically determined. What one does not know is far more interesting, for isn't that where new knowledge lies?

You may decide my advice is sound for everyone else, but you are different. All my PhD students are the same (human beings) and they are all different (individuals). To assume you are different is understandable, but how much different are we, one from another?

Philip Kiviat at a Winter Simulation Conference some 15-20 years ago (not in the published proceedings however) said that we should all remember SINSFIT, which stands for

- Simulation
- Is
- No
- Substitute
- For
- Intelligent
- Thinking

My only disagreement with this totally correct statement is that it applies to almost everything, not just simulation (an exclusion would of course be the trivial substitution of 'simulation' by 'intelligent thinking'). I would like to believe that by the end of the paper I will have made the reader/listener think – but you have to read/listen!

2 WHAT IS A RESEARCH DISCIPLINE?

PhD students are encouraged to define their terms so I guess I should do the same. First I take as my definition of research the one used by the U.K. university funding bodies who have held a number of assessments of U.K. research quality, most recently in 2001 and the next is in 2008.

> (Changes in phrasing from the definition used for the 2001 RAE are in **bold.**)

> *Research for the purpose of the RAE is to be understood as original investigation undertaken in order to gain knowledge and understanding. It includes work of direct relevance to the needs of commerce, industry,* ***and*** *to the public and voluntary sectors; scholarship*; the invention and generation of ideas, images, performances, artifacts including design, where these lead to new or substantially improved insights; and the use of existing knowledge in experimental development to produce new or substantially improved materials, devices, products and processes, including design and construction. It excludes routine testing and* ***routine*** *analysis of materials, components and processes* ***such as*** *for the maintenance of national standards, as distinct from the development of new analytical techniques. It also excludes the development of teaching materials that do not embody original research.*
>
> *Scholarship *for the RAE is defined as the creation, development and maintenance of the intellectual infrastructure of subjects and disciplines, in forms such as dictionaries, scholarly editions, catalogues and contributions to major research databases.*
>
> (HEFCE 2005)

This is a very broad definition, which I admit suits me. The research discipline is then the body of knowledge already uncovered with the associated research tools and methods. So to do research in simulation requires an understanding of what a model is (usually a wrong guess at the problem), some quantitative, computational and statistical skills and the application of the researchers' brains. I find the last one on this list is the least used of these.

The researcher then investigates some aspect of the subject remembering to be neutral and objective etc., etc.

3 WHAT DO RESEARCHERS ACTUALLY DO?

Umberto Eco tells a story about Unicorns in one of his books. I will express it in my words, as follows. Marco Polo went to Indonesia. He wrote back to his sponsors "Good news gentlemen, I have seen a unicorn. But it isn't quite as believed to be in appearance: it is fat, grey, slow moving and has bovine feet."

Marco Polo had never seen a rhinoceros before so when he came across one he declared 'unicorn'. The moral of this story is, if a researcher seeks a unicorn dedicatedly, he or she may end up declaring the unicorn as a result, whereas the result is in fact a rhinoceros.

And when we disseminate our results, do we tell it as it was? Of course not, academic publication is not autobiography; it is presenting your work in a fairly standard structure so that readers may easily get to the essence of the research. This is true for dissertations as well as for published papers. So the written dissemination is in fact a false representation of what happened, a cleaned up linear description of your actual messy confused research activities.

And then there is the 'contribution'. Is it Einsteinian? Of course not, Einstein is known for being Einstein because his contribution was Einsteinian. Nobody has heard of me or most other researchers. Take the conclusions in a top grade journal paper and read them very slowly watching out for the 'weasel' words. For example, I once read in a top rated journal under a section title called "Contributions to practice" a sentence that said

"*We have shown that our xyz approach could make a contribution to businesses small to large*"

Impressive?

Now add the words "*or not*". This doesn't actually change the meaning of the sentence, but its impact has vaporized.

Why is this? Because there are many researchers in the world and new knowledge is discovered relatively slowly, so a publication is more a contribution to the debate about the subject than a great leap forward.

And what about the way we get our results? My favourite bete-noir is the use of statistics. Many publications take a poor idea, add some questionable data and beat the combination mercilessly with a statistics package. And the result is? Well, not a result, just some more numbers. I have previously explained this in another paper (Paul 2005) from which I quote the following text:

> I think the well known expression 'Lies, damned lies and statistics' should be updated to 'Lies, damned lies, statistics and the ability to misuse statistical packages'. My reasons for making this addition to the saying are well expressed in a paper called "Econometrics – Alchemy or Science" (Hendry 1980). He presents (seasonally adjusted) quarterly time-series data for the UK between 1964(II) and 1975(II) relating the effect of money supply on prices. There was a popular political view at that time that controlling money supply kept inflation down. The analysis in the paper shows that money "explains" 98% of the variations in price and has a "significant" correlation. The fit is impressive. Some further analysis is presented before Hendry introduces a new variable, "of great interest in this country", which is the real cause of rising prices. Why? Because the new variable performs better than money against price. And the new variable is?
>
> *Cumulative rainfall in the U.K.*
>
> Hendry whimsically asks if rapid inflation explained the wet weather at the time! Having made his point

about spurious results, Hendry explains how this can be avoided and the problems users do not address before plunging into the modelling. Hendry suggests that before using regression, relevant theory can be used to deduce what would occur and hence construct desired examples.

4 WHAT GOOD IS IT, BEING A RESEARCHER?

A researcher/academic is encouraged to think and gets paid for it! I have never worked as a consultant for any organization that I would like to join permanently since I became an academic. I value my intellectual and personal freedom. And it is possible one might make a lasting contribution to knowledge if one is lucky and thoughtful about one's activities. How can one do the latter?

Let us look at research again. Is research activity research? No, many people do surveys, build models etc and they are not counted as researchers. So what is research? The levels of research for me are

1. Level One: reflection on the research activity, trying to draw out some general rules or exceptions and explaining why these are so. This is usually enough for a PhD.
2. Level Two. Reflection on oneself reflecting on the research activity. How does a researcher know whether their research results are truly results from the system being studied, or are caused by the researcher's intervention in the system? This is sometimes called the Hawthorne Effect
3. Level Three. Difficult to describe, reflecting on yourself reflecting on … If you think about it too much it is a bit like taking a God's view. But religion is a personal matter so I shall leave this to you.

Which ever level(s) you operate at, you take your research skills and apply them to your chosen research topic. But what about ourselves? Don't we want to improve ourselves? So why not apply our research skills to our favorite subject – our self.

5 HOW CAN WE RESEARCH OUR SELF?

First some ground rules:

1. What do most people think about most of the time? – themselves
2. What is the greatest barrier to peoples' personal achievements? –themselves (beware of fear that is usually self induced and not real)
3. When two people talk together what are both of them usually not doing? – listening.

So in order to research yourself you need to remember the ground rules and adapt around them. Some essential questions then to ask yourself are: What sort of person do you want to be? For example I want to be honest with myself (how can I know?). That means I have to be honest with everyone else – I hope you can see I am.

- What do you wish to achieve?
- In what timescale?
- What will you have to do?

Remember, not asking these questions is also a choice. Now you can start leveraging yourself. And make choices that work for you.

6 WHAT CAN WE ACHIEVE FOR MANKIND OR SOCIETY?

Once you have sorted **yourself** out you are in position to help others at no cost. First, we all want respect. So give it, it costs nothing and we all deserve it. There are no inferior beings, just some not as lucky as us. No cost, but the benefits are that you are at ease with the world and vive versa. Researching and collaborating is easier and more beneficial.

On a similar vein, I have observed many people rush to judgment over someone else, and never have I seen any benefits from doing this. In fact, not only can judgment be damaging to future relationships, but it works counter intuitively. If a colleague is the possible reason why you have some professional difficulties, you could try and argue or even damage/revenge yourself on them. Net result, pain all round. What should you do? Why not find out what your colleague is thinking and play scenarios of possible futures out for or with him/her or give some scenarios for your colleague to look at.

Always help others if you can do it easily at low cost to you. When someone else has a problem, don't share it. Detachment will allow you to help and probably resolve the lack of understanding of problem owners and/or the analysts. Once the problem is resolved, the owner will breathlessly tell the world the solution. Many such successes will lead to you getting the blame for them. Determination will generate rapid success. If this is how you have worked out what you want, then make sure that everything you do gets you there ASAP. Leveraging your activity will also help you maintain a steady stream of support.

Don't forget confidence. How many people do you know whom are clearly much better than you? Not so many. But if, in spite of this, you decide to wear your supposed lack of belief in yourself on your face, don't be surprised if your colleagues find it difficult to disagree with you. With confidence you can learn how to take a belief and impose it where it is needed. An academic with determination will quickly wear down their colleagues to the advantage of all. Unless your colleague is incompetent. If this is the case, incompetence should be dealt with quite simply.

Incompetence ➔ get rid of ASAP

7 CONCLUSIONS

We can achieve any or all of the benefits of asking the three questions posed in the preceding three sections and answering them honestly

- We can achieve more by addressing them together (triangulation at last!)
- We can make life better for everyone and set an example to follow too
- Fearlessness
- Universities can then fulfill their (expensive) role in their communities: independent, critical, exposers of malevolence, knowledge pursuers and enlighteners (do we do that now?)
- We can have fun

If a student does a PhD with me, I warn them that as well as a PhD I intend to seriously improve their brain (although inside their head all changes are made by the owner and not by me).

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AUTHOR BIOGRAPHY

RAY J PAUL retired four years ago (early retirement due to permanent illness, Parkinsonism) after having worked for 21 years for the London School of Economics and Political Science (LSE) and 11 years for Brunel University. Both Universities have appointed Ray as a Visiting Professor, and Brunel have further honored him with the life-long title Emeritus Professor. Ray edits the *European Journal of Information Systems*, is a full member of two sub-panels of the U,K. Government's Research Assessment Exercise for 2008 and gives invited talks to audiences he would particularly like to communicate with – as for this paper/talk. The ideas expressed in this paper are developing, and this is the first 'formal' presentation of them. My audience can be pleased (first to hear this line of thinking) or disappointed (why is he trying it out on us). Either way I hope the ideas expressed in this paper haunt you, especially if you try to ignore them. Ray would describe himself as a discombobulator and thinker rather than by a narrow research discipline title.