



Rejoinder: Development of an early career academic supervisor in Statistics - a discussion on a guiding rubric

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First and foremost, we would like to thank all of the discussants for their contributions to the detailed critique presented on the proposed development of early-career Statistical Sciences supervisors in South Africa.

This paper is by no means a prescription for the maladies identified for flourishing in academic statistics, and in fact as one discussant rightly says, the maladies that may also exist in many other academic fields in South Africa. However, the authors still feel that the challenge is more pronounced in Statistics as the attrition to non-academic professional options are very lucrative in South Africa, as indeed, in other countries. Our attention is only on South Africa, and in order to ensure that the academic pipeline here remains adequate into the future, it is imperative to act now. This is both for ensuring that young academics in Statistical Sciences are challenged and content in their roles as a teacher, a supervisor and a researcher; as well as for ensuring that they are sensitised to potential pitfalls and potential solutions to help them navigate a successful, particularly early, career in academia. Not every young academic is expected to have any, or all, the maladies identified thus far. As such, the guidelines the authors are looking to establish are just that, guidelines.

This discussion process has inadvertently become the first step in the nation-wide consultation process that the authors have planned for the follow-up work based on this

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paper. The second step has also already begun — identified independently by five of the discussants, which is the consultative process with both academic Statistics departments all around South Africa, and the focused interviewing of senior Statistics supervisors in the country. In this matter, we are all in agreement — substantial consultation needs to take place in the creation of any sort of guiding rubric for PhD students and their supervisors, taking care to ensure that all ‘flavours’ of Statistics departments, and those closely linked to them, are included in the discussions, such as from Business Mathematics to Biostatistics, and everything in-between. The authors would also like to thank one of the discussants for the list of questions that can be included in the interviews that are currently being held by the authors with the Statistics departments, and that can be included in any questionnaires that may be sent out to departments or senior supervisors in future.

Note that, while one discussant has explicitly agreed that the path to being a competent academic is a difficult one, another has questioned whether this is indeed the case. The authors feel that this disparity is not unimaginable — there are indeed different experiences amongst young academics. The authors themselves (being from five different academic institutions in South Africa, and with some industry experience) believe there is enough anecdotal evidence to suggest the academic career is not a simple one, and this should at least be taken into consideration going forward with this research.

Very importantly, one of the primary topics of the original discussion, namely the identity crisis of Statistics in South Africa, has been pointed out by two discussants to, in fact, be exactly the opposite of a ‘crisis’, instead posing a unique opportunity for Statistics in the country. Upon second thought, this is indeed correct, and a far more positive take on the challenges that we face in the field. It is in this light that the authors will continue to work on this research — the idea that disparate and ‘silo’-ed departments can indeed be brought together under a common academic umbrella in this country, while still retaining the rich diversity of each department’s academic location and speciality.

One primary mechanism through which an academic umbrella could be created is the formation of networks between academic Statisticians (and beyond, namely industry) while this research continues. It is already heartening to see how so many institutions have been connected by the creation of this initial paper, as well as through the process of the discussion reviews. The authors have no doubt that this initial impetus could be sustained going forward.

No fewer than four of the discussants have made excellent arguments for the involvement of industry in all aspects of the development of academic Statistics, early-career supervisors, and PhD students in the country. While this academic-industry connection was not explored extensively in the discussion paper, the authors completely agree with the discussants on building and strengthening these links, and are appreciative of the depth to which the discussants have gone to indicate how and where this could be done. We acknowledge that industry could provide mentors, co-supervisors, funding, and a depth of research topics, and we would like to assure all stakeholders in this ongoing research that discussions with industry will be included in any follow-up work.

On the topic of industry involvement, the idea of the professional doctorate was brought up by one discussant. The authors agree that this may be one route through which academia

can formally section out a highly visible space for industry involvement. However, we have to admit that we may not have the influence at this stage to even suggest changes to actual degree structures and offerings — processes that bear heavy administrative requirements at each and every academic institution in South Africa. Obviously though, it is the hope that in the future this continuing research will have enough support and ‘buy-in’, as one discussant put it, that follow-up publications could be used as evidence to support applications to administration if there is evidence to suggest that degree structures do indeed need to be altered, or new degree options need to be implemented.

Two discussants have rightly spotted the inherent problems with trying to implement a rubric on a fundamentally creative process — one that may be better suited to holistic grading. The authors are wary of this, but feel that there is a middle ground that can be satisfactorily achieved in which a guiding rubric could be established that could both aid supervisor and student in suggesting the correct procedures to follow for a completion of a high-quality PhD (and research outputs) as well as leave enough room to manoeuvre so that creativity is not only acknowledged, but supported. The envisioned guiding rubric would not be prescriptive, and would be constructed carefully in order to refrain from crimping creativity, in the PhD output or process. The guiding rubric would not be any sort of restraint to completion, and would not reduce a PhD study to a checklist of items to be completed. We are grateful to the discussants for highlighting these pitfalls associated with rubrics, and we hope that this rejoinder has allowed us to allay any fears that we might be edging towards these traps. The concern of one of the discussants that the rubric should be continually revised is also noted, although we would like to point out, should the research culminate in a guiding rubric, the initial intention is not a prescriptive document. The authors hope that the guiding rubric will instead serve as reference documentation to support early-career academics and new PhD students in attaining the broad outcomes of a PhD study as well the graduate attributes required from such a degree.

One final item from a discussant that the authors would like to comment on is the historical placement of Statistics PhDs in this day and age. The authors had not yet considered the evolution of Statistics over the last 100 years, and we agree that formally placing our discipline on such a timeline might aid in bringing together different takes on what a PhD means to a statistician at this time. While we feel that a guiding rubric should be supportive of more traditional methodological and theoretical studies on the one hand, all the way through to application or computational work on the other, it may be useful to formally address these options in the context of the history of the discipline, as well as in the context of an agreed-upon future for the discipline.