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Why so few Ps become As: The character, choices and challenges of South Africa's most talented young researchers

In this research article, we examine why so few of the most promising young scientists in South Africa, those who obtain a P or 'prestigious' rating from the South African National Research Foundation, go on to obtain an A rating, i.e. become leading international scholars in their fields. Drawing on in-depth interviews with 36 P-rated scientists in the period 1983 to 2022, we found that personal characteristics (such as work ethic), the right international networks, and strong departmental support are among the key factors that explain the research accomplishments of highly successful achievers.

Significance:

The research is significant for two reasons. It explains why so few promising young scientists in South Africa become world leaders in their respective fields and, in particular, why even fewer young black scientists achieve the highest ratings in their disciplines.

Introduction

In a companion study on young scientists (including social sciences and humanities scholars) with a rating from the South African National Research Foundation (NRF), we found that the P rating showed a poor predictive validity with respect to its granting assumption: that Ps were likely to become world leaders in their respective fields which, in NRF terms, means an A-rated scientist.¹ In fact, of the 136 Ps awarded since inception (1983 to 2022), only 20 (14.7%) became As. Of these Ps, 21 were still in their P cycle in 2022. If we exclude them from the total, then 20 of 115 eligible Ps became As (17.4%). Figure 1 illustrates the progression of Ps to higher ratings between 1983 and 2022.

This does not mean that the P is not a good differentiator in terms of future success when compared with the lower rating for young scientists, that is, those who obtain the Y rating, as Figure 2 shows.

In this regard, two distinct trends emerge for P- and Y-rated researchers. For P-rated researchers, the distribution is skewed towards the higher rating categories, peaking at B1 (31%). In total, 78% of P-rated researchers (excluding those without further ratings) ended up achieving a rating of B2 or higher, while only 13% received a C rating (C1–C3).

For Y-rated researchers, the distribution is skewed towards the lower rating categories, peaking at C2. In total, 77% of Y-rated researchers (excluding those without further ratings) went on to receive a C rating (C1–C3), while only 24% went on to receive a rating of B3 or higher. It should be said that obtaining a P rating as a young scientist is an impressive achievement in its own right – not many P ratings are awarded by the NRF, and most young applicants who are rated would begin their careers with a Y rating.

Background

The NRF is a statutory body mandated by government to fund and support research and development in South Africa. One of its core functions is to assess and rate the scholarship of individual scientists through a peer-review-based rating system. Younger scientists, under the age of 35, can achieve a Y (Y1 or Y2) rating or the rare P rating. More established scientists compete to be awarded a C (C3, C2, C1) or B (B3, B2, B1) or A (A1, A2) rating with the stated gradations (in brackets) for each of them.

Each category of award has its own careful description. The Y is a promising young researcher, while the P is a prestigious award. The C is awarded to an established researcher, the B to an internationally acclaimed researcher, and the A to a leading international researcher. Each gradation within a category has an even more refined description to distinguish, say, a C3 from a much higher rating, the C1.

In the NRF stipulations, P awardees are those young scientists "considered likely to become future international leaders in their field" and who, in the review process, are "recognised by all or the overwhelming majority of reviewers as having demonstrated the potential of becoming future international leaders in their field on the basis of exceptional research performance and output".

Given these heightened expectations, we wanted to know who exactly the Ps are and why so few of them became A-rated scientists.

Approach

This report represents qualitative research grounded in the etic or insider perspective on doing advanced research within universities. An initial interview protocol was piloted with non-participating young scientists and amended accordingly. The thick data generated from the 36 transcribed interview sets was qualitatively analysed for convergent and divergent themes, out of which emerged the seven key findings. This is a non-judgemental inquiry in that the words of the P-rated scientists represent their own experiences, methods, and ambitions.

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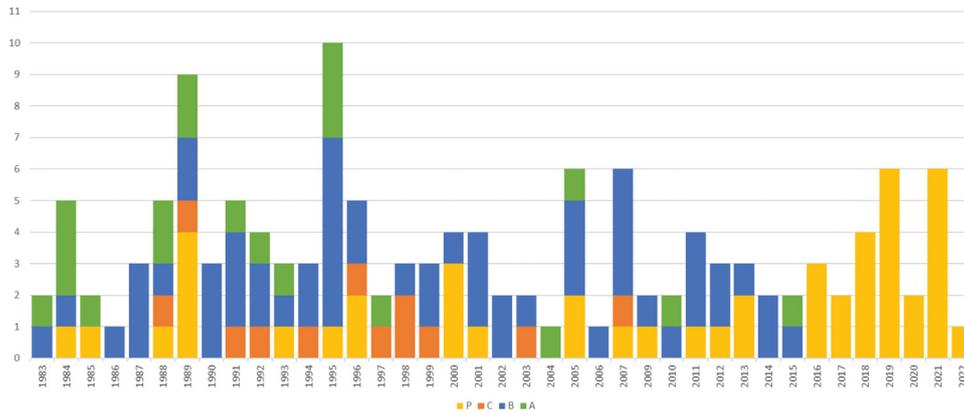


Figure 1: Highest rating achieved by P-rated researchers, by year in which the P rating was first awarded.

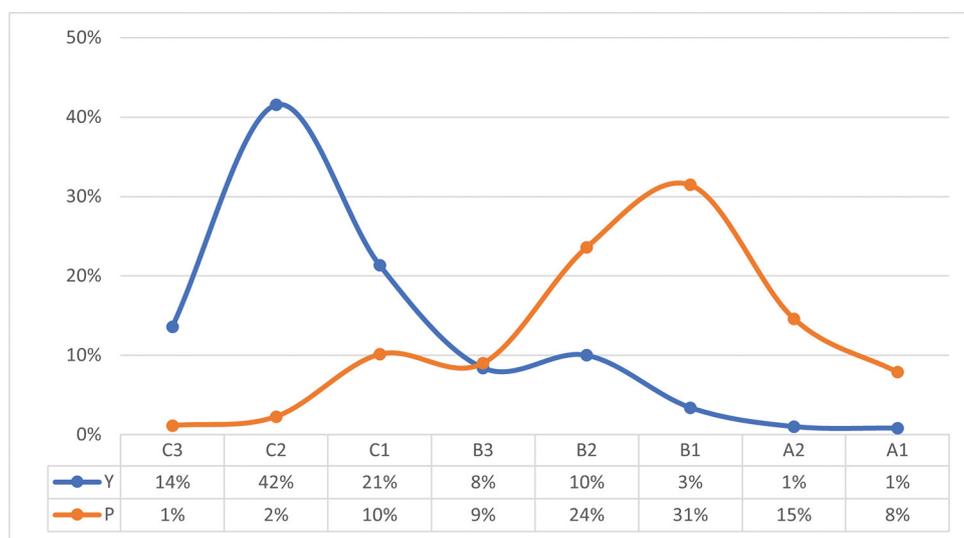


Figure 2: Comparing the senior ratings (A,B and C) eventually achieved by P- and Y-rated scientists.

The themes induced deductively from the qualitative interviews are not mutually exclusive. Nor do we claim that they represent the full range of explanations for success or otherwise of young scientists striving to become top-rated senior researchers.

To understand the low conversion rate of Ps to As, we interviewed 36 of the 136 Ps (26.5%) who were sampled based on their availability, their disciplinary diversity, and the extent to which they enabled a more or less equal distribution of numbers in each of the following three categories:

- In category 1, we interviewed Ps who actually became As over time (7 or 19.4% of this group). The purpose of the interview was to understand how and why they became As by asking questions about their work habits as researchers and their connections to the broader world of science collaboration.
- In category 2, we interviewed Ps who did not become As (15) and received their prestige rating 10 or more years ago. How did these scientists explain their lack of progress towards the highest rating for which they seemed destined?
- In category 3, we interviewed recent or new Ps (14) to understand what meaning the P held for them today, their work habits, and whether they would apply for re-rating when the time came.

Throughout, we anonymised the responses, with respect to both individual and institution.

We found seven key factors that explained the research trajectories of the P-rated scientists – for those who became As, those who did not, and those planning to become international leaders in their respective fields.

1. Work ethic

More than anything else, the single most important factor distinguishing ‘Ps who became As’ from other competitive young scholars is an extraordinary single-mindedness of purpose when it comes to research and publication. In other words, it is not primarily about the research environment or the availability of funding (external factors, things that can be built or supplied) but about the internal qualities of the P candidate. Those qualities are expressed through a dogged determination to succeed, a laser-focused attention on the research project, and an exceptional work ethic.

An A-rated plant scientist who has held that status for multiple cycles, estimated that he works

about 80 hours a week, though not every week. I'm probably an obsessive-compulsive kind of person. As I get older, I need to start scaling down, but I don't know what that means. I need to stop this.

It is a story repeated among the Ps who became As – stories of long hours, working on weekends, writing on planes, and being driven. As an accomplished P-to-A female medical scientist also shared:



I work between 60–80 hours per week for as long as I can remember. I am a workaholic, punishing myself in terms of meeting deadlines. I am organised and extremely hardworking.

This gruelling research schedule is by no means limited to the P-to-As group, but can be found also among the more recent Ps, as explained by this young microbiologist: “I work almost all the time, my hobby tends to be work which I am told constantly is not good, but I do work quite a lot.” A more established P, who gained a B rating in the plant sciences, was interviewed during a research sabbatical in Europe:

On Sunday night I got home at 8pm and it's the earliest I have been home for 2–3 weeks. I get really passionate about what I do. [As a younger researcher] my wife would visit me in the lab over weekends so that we can have some time together.

It is this relentless commitment to productive work that also explains why these young scientists become Ps in the first place. For some, this particular mode of work is taken as normative, as a rare P in the field of law surmised: “I don't know of a single academic who has done well who doesn't work weekends or in the evenings.”

With such a determination to succeed among the Ps, it is no surprise that there is a strong passion for their science and an equally strong commitment to achieving the ultimate rating (the A). When this does not happen, or not immediately, there is intense emotional fallout. One scientist, who changed her field to molecular microbiology, was devastated when she went from a P to a mere B2 rating. “I was hammered by that; if you change fields you're messed up, ok? You are completely messed up.” She would eventually obtain an A rating.

A tree pathologist steadily made his way from a P to a B1 to an A1, but then surprisingly found himself ‘demoted’ to an A2 when in fact his research and publications had soared before that: “I was furious, I was absolutely furious. It was highly offensive and upsetting and I asked for an appeal.” He too would later regain and maintain an A1 rating to this day.

For these accomplished, passionate scientists, the evidence is clear that the groundwork for becoming an A is laid early through a highly active and productive work ethic during the years of doctoral study, as well as the immediate postdoctoral period. Put differently, the Ps obtain their prestigious rating because of a surge of publications before they even secure a permanent academic position. Consider the case of this highly productive young anthropologist, as she came up for her P rating:

I think I am right in saying that the P was awarded on the basis of two books, an edited collection, another book, 11 book chapters and 19 journal articles. It is interesting to read my CV this way!

However, none of this could be achieved without a considered plan.

2. Strategy

Most Ps were identified early on, encouraged, and prepared for the rating by institutional mentors. One P had applied for a rating, but his application was intercepted by a senior academic reviewing the university's pool of applicants. The young scientist was called in to discuss delaying his submission until two or three additional research milestones had been achieved; in other words, the current application would likely get a Y rating but with a considered strategy, could very well become a P. Two years later, the candidate applied and was awarded a P. Another P had no intention of applying for rating at all, but his scientific work was noticed by a senior professor in his department. Together they worked on a strategy that would eventually lead to a successful P application.

The top research universities all have *institutional mentors* embedded within the system. These are senior professors who themselves enjoyed superior ratings in their academic careers and know ‘what it takes’ to become a P-rated scientist. However, the mentors are not formally appointed or even recognised in the administration; for them, it is their academic duty² – a service to up-and-coming scientists. What they have

in common is a commitment to identify and nurture future stars of the academy.

Each institutional mentor has a more or less similar strategy to guide the potential P. Make sure you have enough quality publications in high-impact journals showing first authorship. Choose your reviewers carefully from your international networks, scientists who know you and your work. Do not rush; submit only when there is sufficient evidence of high-level academic outputs to merit P rating consideration. Take time to write a carefully crafted narrative that explains the singular focus of your research. Show evidence of what comes next in your research journey so that reviewers have a sense of your future trajectory.

Regardless of what the mentor advises, the finer points of strategy still depend on the drive and calculations of the P candidate, and no one better lays out the plan for success than this new P in philosophy whose intellectual interests lie in the field of computational linguistics. We summarise and paraphrase his strategic thinking here:

I knew I had to get my name into the Stanford Encyclopedia of Philosophy. But how would I do that? I needed to find a famous co-author, which I did. I then realised I needed to get an invitation to the top journal in the field, Philosophy Compass, which I did, and single-authored an article on the philosophy of linguistics. I was encouraged by my doctoral examination committee to put my new thinking into a book. I got a mentor who is an A-rated philosopher and he put me in touch with Oxford University Press. At the time, I also got the Pittsburgh Philosophy fellowship and prepared a proposal for another book to Cambridge. What this means is that I will hopefully have two books coming out in 2023 (Oxford and Cambridge).

Few of the 36 Ps interviewed demonstrated such incredible clarity of thought and refinement of strategy as this young philosopher. While several of the new Ps were unclear, and sometimes even ambivalent, about pursuing the path towards an A rating, this philosopher had clearly done substantial work suggesting that he is on track to becoming one of only three Ps who got an A evaluation within one 5-year cycle. He certainly carries that expectation: “I would be extremely disappointed with myself if I were not able to achieve an A in the next round.”

Central to the effectiveness of the strategy of the Ps is the extent and the quality of their international networks; on this they are all agreed.

3. Networks

Without exception, every P did their PhD and/or postdoctoral fellowship at a top international university. A few did all their degrees overseas at prestigious institutions such as Princeton, Harvard, Oxford, and Cambridge, but all the Ps had some connection to well-known universities, mainly in Europe and North America. It was during these periods of placement abroad that two vital things happened: they were at their most productive in research and publications, and they built close and enduring relationships with the leaders in their fields. Without those international networks, the respondents agreed, they would not have experienced the phenomenal growth that led to the P award, and the academic recognition that came with it.

One of the Ps who became an A, who did his PhD at a top university in his field, makes the point that “I was already connected to the stars” and that such “global connectedness was absolutely crucial” once he returned to South Africa. For another, the international placement gave her “unfettered access to time and people and resources”. All the Ps maintained those critical networks, but it required hard work. “I would go once a year to talk to the doyens” explains another P-to-A scientist “and I benefitted merrily ... and found myself in two of the leading labs in the world”.

For all these P-rated scientists, maintaining those networks meant travelling a lot. One of the new Ps who recently became an A remembers that “I was out of the country for one week every month” before

slowing down to spend more time with his family. “If you want to go to an A-rating” insists one of the other Ps, “you need to be known in the international community – that is my strong advice [to prospective Ps].” As indicated earlier, the many hours of plane travel enabled productive, undisturbed work that many of the Ps would exploit as they went back and forth between their home universities and a laboratory or seminar room in a distant land.

What became clear through the interviews is that none of these international networks and collaborations was incidental, random, or the outcome of occasional visits. They were part of a systematic and strategic plan and therefore every network was carefully chosen and nurtured over time. One of the Ps, a tree mycologist, made the interesting point that “you just need to know five people” and that “if you know [them] everything changes, everything”.

Consider the mechanisms that enable such productive introductions, as retold by this P in plant physiology (not their real names):

I did my master's with Michael, who introduced me to Trevor to host me at his lab in Tasmania. In the same way, I did my PhD with Dick, who had a close working relationship with Dave at Berkeley, in whose lab I did my postdoc work. So, the networks were fundamental. I owe my career to the networks that I have been able to take advantage of and develop.

The scientists approached are all highly accomplished leaders in their fields, extremely busy and always in demand in their professional communities. An unknown young scientist from Africa would certainly not be able to command such attention, and this is where the introducer becomes so important in the life of a P.

Where the young scientist enters doctoral studies with a famous scientist as supervisor, a relationship develops over three or more years in which the novice and the leader often become friends. Smart Ps would invite their supervisor to South Africa for a seminar or conference keynote, and even do joint publications that further cement the relationship. The loyalty that develops over time means that the ex-supervisor or mentor now takes on the task of introducing the young scientist to stars in allied networks. The role of the introducer is therefore essential to the success of the future P. It is clear that these rich networks both reflect the aggregate resources for research in the Global North as well as the inequalities in relation to what is available in staffing and infrastructure in the Global South.

Nonetheless, when they did find themselves in those rarefied international research spaces, the Ps would exploit the resources and expertise to the full before returning home. As one P retells, “I did every single early career workshop. I signed up for every single opportunity in this well-resourced, creative environment.” What these accounts underline is that the placement of the P is crucial for optimising the learning opportunities that come from international networks. A young P even observed that some colleagues were “working overseas to improve their subsequent ratings”. Back home, it is the department that matters.

4. Department

Where a newcomer P ‘lands’ in an academic department plays a significant role in their ability to flourish – or not – as young researchers at the top of their game. One P enters her department as a lone astronomer eager to build a research group from scratch because there was no infrastructure. With her American PhD she finds herself in what she calls a staid English academic culture which is discouraging, even spiteful. P stands for *prima donna*, she would hear, and finds department colleagues to be indifferent at best and ‘nasty’ at worst. Shortly afterwards, she leaves that South African university.

One of the very first Ps remembers coming into a university without a secure job. In fact, “I came into a complete vacuum as a P awardee.” At the time, his physics department had no postgraduate students and so it was always going to be difficult to build a research group. It was also clear to him that people in his department had no idea what exactly

a P meant. Before long, he too abandoned an active academic research career.

On the other hand, when a P lands in an academic department with a strong research culture and a known record for high-level scientific work, the young scientist finds the necessary stimulation and support that buoys their own academic ambition. There are already active research groups and regular seminars and networks that bring top scientists in and out of the department. One P remembers entering her South African academic home being “surrounded by brilliant people with a Nobel Laureate next door” and speaks of the department as “this powerhouse of a place that ranks by certain metrics as number 1 in the world in tuberculosis research”.

For another P, the relationship with the department was transactional: where the P was productive in the generation of research and publication, there would be more opportunities to find relief from the more burdensome tasks of teaching and administration. As he remembers,

because I was showing success, they allowed me certain freedoms to be able to focus more on my research ... the more you can deliver, the more freedoms you have and the more support you get.

However, even in well-resourced universities with communities of postgraduate students, where you land as a P depends entirely on how the head of department sees the prestigious award. Two contrasting experiences from interviewees are instructive.

When a young scientist in plant physiology attains a P rating, his head of department immediately begins to shape the work environment in such a way that enables his research to flourish. He would encourage grant applications and support the research-driven individuals. “I have been given a relatively light teaching load so I can focus on the research” said the appreciative P, adding that “my HoD has been incredibly supportive”. What was striking about this focused support for the P is that he had just been appointed, which would normally mean that, as the ‘newbie’, he would be given a substantial teaching load. For this HoD, however, the research potential of his new appointment was to be optimally realised. In response, the new appointee’s “main motivating driver at this point [is] to make a success of my P and to focus on the research”.

At a neighbouring university less than an hour’s drive away, another scientist recalls that after the initial fanfare around the P award there was little support, no mentorship, lots of politics, and a lack of responsiveness to personal research needs. His teaching of large classes came with a significant administrative load so that “I certainly burnt out and there was no recognition from the department that the research component should be prioritised over the teaching component”. While he had grown a research group, won competitive funding, and published, it did not matter to the department leadership. In the end, the work became “too tiring”, and the P-rated scientist emigrated with his family to another country.

5. Transformation

Only two black scientists ever progressed from a P to A: one in cardiovascular genetics (now deceased) and one in vertebrate palaeontology. The relatively small number of black rated scientists in general, and Ps in particular (7 out of 136, or 5%, until 2022), of course reflects the inequalities of social and scientific opportunities for black students and researchers over centuries.³ But what explains the fate of the remaining Ps who were in the system long enough to have attained an A rating? They all shared a common experience: the pressure to lead transformation in senior administrative positions, which in turn had direct negative effects on their research performance.

Two of the seven black Ps won the president’s rating, as it was first called, around the time of the country’s transition from apartheid to a constitutional democracy. It was a period of great expectation for highly qualified black scientists – many of whom came under pressure to lead and transform the solidly white scientific establishment in the early post-apartheid years and to build strong faculties in the historically black universities. Here are vignettes or short stories of three black

Ps who went into leadership in universities and in science enterprises off-campus.

The first black P felt the pressure immediately. Barely out of doctoral studies and having just attained the P rating, he was definitely looking forward to a productive career in theoretical physics. But he was told that there was a real chance that the black university where he worked could lose its struggling engineering faculty. He answered the call and found himself “drawn into deanship to save the faculty of engineering”. That the P scientist was a physicist and not an engineer did not seem to bother the university’s leadership. They needed a leading scientist whose knowledge and reputation could rescue a faltering faculty. “I made those choices, not unwillingly”, indicating that the lure of leadership through service was a conscious commitment.

Because of his success as a university leader, this P was soon afterwards drawn into leadership at the neighbouring white university as well. This was the institution where he studied as a minority on a then overwhelmingly white campus and his “terrible” experiences there as a student served as an additional incentive to want to lead there. As he recalls, “I did feel that the transformation of University X [the former white institution] was something I had to do; it was after all the late 1990s and there was pressure to change things in higher education.”

Clearly, there would be little dedicated time for building a research career in physics and that sense of loss came with regret. “You see your [research] life just flitting away ... I really do regret some of those years.” It could have been very different. “If I had stayed in physics there is little doubt that I would be an A.”

The second black scientist achieved his P in 2003 in the field of artificial intelligence during his first year as an academic. With a significant amount of funding at his disposal from both the NRF (ZAR100 000 per year over 5 years) and ZAR2.5 million that came with a prestigious research chair, he was ready to launch his scientific career “with money I could not possibly finish”. He recalls that “as my rating expired (2008) I became Dean of Engineering”.

By this time, his research was already taking strain and with the re-application for rating (2008) he received a disappointing C2 rating, which he read as “punishment for working in diverse areas”. Once again, the P was identified as a leader in his university, but he insists “I did not seek to be a manager; I was called to consider the role and told I could return to being a scientist if it did not work out. I never came back.”

In the interview, the former P drew our attention to his Google Scholar chart showing the frequency of publication by year in the form of a bar graph. “Every time I took a leadership position my publications went down, literally. Dean, Deputy Vice-Chancellor, Vice-Chancellor, down. There is definitely a cost to this which we cannot avoid.” One of the consequences of immersion in management and leadership is that attendance at signal academic events came to an end. “I have literally never attended research conferences since I became a manager.”

The third scientist whose vignette is shared here obtained his P in 1997 at the age of 35 after completing a PhD in physics under a Fulbright Award in the USA. Returning to his alma mater, there was some excitement generated around the new P, but this was not matched with a hospitable research context. As he recounts: “Through the P rating I was able to kind of aspire to something that was world-class but in reality, the local environment did not support that.”

Raised in an era of activism, this P would soon feel the pressure in and outside this former white university to lead transformation in physics. Unlike others who were called on to lead by senior colleagues, this P felt an obligation to do so across a number of science fields at the same time. “I felt as a South African and as a scientist in South Africa, I had many more responsibilities to lead.”

The P tried very hard to maintain his active research record during spells as a dean at two elite universities in South Africa, with some success. “I am still doing science, I have a PhD student, I give talks, but I am unable in my dean’s role to continue at the highest levels of science.”

The only P in education would reflect that when he took the deanship of his faculty, “without doubt it derailed the research machine, without doubt. You cannot do very good research in leadership, for it requires deep thinking for which there is no time. It has come at a personal cost ... and I feel sore”.

6. Motivation

In the early years of the evaluation system, the main reason for applying for a rating was that it was required in order to access research funding. One of the very first Ps remembers that his university at the time did not have money for research to support their researchers nor did his senior leaders understand the value, or for that matter the workings, of the nascent rating system. The young mineral and process engineer had no laboratory or equipment to speak of, so he applied for the rating and, as a consequence, could start building the beginnings of a research enterprise.

In today’s value, the early rated researchers once received significant sums of money for their research. In 1984, a P received ZAR100 000 (ZAR2.04 million in today’s money) and in 1991, ZAR750 000 (ZAR5.79 million) while today (2023) the individual P receives a mere ZAR50 000 per annum from the NRF. It should be said that it was difficult to pin down a clear or consistent value of NRF allocations to Ps (or other rated researchers) as the rationale and magnum of funding changed almost every year, including periods of no funding at all, as well as a period of ‘incentive funding’ that stood apart from the traditional allocations of award.

Regardless, in time it became clear that the motivation for applying for a P rating had little to do with accessing research funds through the NRF allocation. The process of applying is too onerous, as all the Ps agreed, and the size of the award too small if money was the only motivation. So why did Ps apply for rating?

For some it was quite simply a matter of obligation towards the department; in other words, academic staff were either encouraged or required to apply in a university eager to improve its standing as a research institution in the South African higher education landscape. These metrics are publicised on university websites and comparisons are often made with other public universities.

For other Ps it was more calculated, a personal decision quite apart from what the department or faculty or the university might require. “I got a sense it was a good idea, so I applied” says an ecological scientist who was attuned very early on to the world of research. She was exceptional: one of only two who started at P and progressed straight to an A rather than via the C, or more likely B, rating first. As an undergraduate student she was already co-publishing research papers, having grown up with parents who worked in the science community.

“I applied to establish myself,” said a humanities P conscious of the value of this prestigious rating within his research-intensive university. For him, and others, the process of completing the online application might have been arduous, but it also offered the opportunity for self-reflection – such as composing the narrative that threaded together the various elements of the candidate’s current and future research. “It was a self-actualising tool,” offered one P.

There were other benefits too. “The P put me on the map of the university leadership,” said a science P. Others spoke of being able to negotiate a more permanent position (bargaining power, in other words), the opportunity for promotion, and the “opening of doors” to influential people in the university. One P spoke movingly of the recognition that came with the award, saying that, “It was the first time in my life that somebody recognised the quality of the research work I’d done.”

And, while the P award from the NRF in the 2000s might have come with a modest financial allocation, many awardees found unexpected contributions from their university. Some universities provided funds to match the NRF allocation. Others would add a 25% salary bonus, or an “exceptional achievers” award made annually for the duration of the P. One institution offered a generous multi-year institutional award, easily accessible for up to ZAR350 000 per annum. And of course, the P status



of the individual could be used to leverage external research funding for a distinguished research chair or a generous international grant.

7. Life

A sizeable number of Ps (47 out of 136, or 34.5%) did not pursue a further rating. The reasons vary considerably from one individual to the next. Some left for industry (this applied particularly to those in the applied sciences and engineering fields, although most maintained some foothold in the academic world); others felt disenchanting with the lack of support in the academic environment and found themselves moving jobs in and outside of universities simply to survive; one left the university environment altogether because he could not even secure an entry level job in his department with a P in-hand.

A recent P, a geochemist, was about to leave for her native country in Europe because of difficulties securing a visa extension. A few wanted to disconnect from the intensity of the research environment – very much holding the attitude expressed by one P, “I am not a hamster, I’m not jumping onto that wheel.” In the latter case, the disengaging P often cites the prioritisation of children and family over the intense research demands made on high-flying young scientists.

There are also Ps who migrated because of conditions in the country. One of the first Ps left because he “could not see any opening of society” during the apartheid years. But others left because of concerns for their safety and security in the new South Africa. One P, a historian from Italy, was offered permanency and seniority at his university, but it was not enough. His new wife felt unsafe in a city known for high levels of crime, whereas “back home she likes to take long walks at night which she can do safely over there”. Another P cites the hijacking of a family member and concerns over the future of his children for relocating to a research and development industry opportunity in Australia.

“Then life happened,” mused one P in a lengthy email responding to our research questions. This fig biologist would suffer a series of chronic health challenges which included physical, psychological, and neurological problems. “My research group was destroyed, and I just could not get going again.” There was no lack of effort, though, to restart an energetic research programme, but frailty of body and mind would limit his academic work to teaching large undergraduate classes.

And then there are the Ps who, through a combination of a disinterested academic department and a growing teaching load, simply abandon the pursuit of a second rating. A political science P recalls some initial excitement but then “a really, really reserved response” from her departmental colleagues. The promise of less teaching when the P was announced did not materialise. She suspects academic jealousy reflected in snide comments that she was not doing “real political science”.

In the meantime, her class sizes doubled ($n = 320$ in one undergraduate third-year class) and suddenly “there was no time for slow, deep, profound work” required for advanced research. Of course, with the huge classes came heavy administrative loads, all of which “sucks up a lot of your time”, alongside committee work and journal responsibilities. Why did she not walk away and concentrate on her research? “One wants to be a team player.”

When this P and others reflect on the “life happens” explanation, they cite two major events in recent times – protests and pandemics. The historic student protests of 2015 onwards (decolonisation, free higher education) disrupted their research⁴ and required that they attend not only to teaching but the mental and emotional anxieties of students⁵. A second major disruption was the pandemic that led to lockdowns starting in 2020. This event, too, derailed the research of especially those Ps who were bench scientists.⁴ Said an atmospheric chemist,

I have a piece of laboratory equipment that stood for a year because technicians from Germany could not be sent to install it. Students did not graduate. Papers were slow in coming out. My work definitely took a hit.

The fact that more than a third of all Ps did not go on to a senior rating does not show a particular trend or a cluster of factors that provide a causal explanation for the observation. Moreover, the relatively small sample of Ps means that one cannot make any firm generalisations beyond what is reported here.

Discussion

It is evident from this study that the Ps who become As are those with an extraordinary work ethic and focused determination, who devise fine-tuned strategies to advance their research (and therefore ratings). They would draw on high-quality international networks, which are enabled by supportive university leadership, while resisting the lure of senior administrative positions in order to flourish within productive research environments, all the while navigating the challenges of life and living in South Africa.

While the rating system has, since its inception, drawn both critics⁶⁻⁸ and supporters⁹⁻¹¹, it is clear from this study that the P rating carries enormous value for the awardees that goes well beyond financial benefits. Apart from compliance, issues of status, recognition, promotion, and bargaining power all feature in the motivation of the Ps for their rating applications.

What this study also revealed is that the under-representation of world-leading black scientists in the global academy will continue unless the pipeline of young talent is increased; that the most promising of emerging researchers identified in their earlier years (doctoral and postdoctoral studies) are placed inside highly productive international networks; and that they are incentivised to continue doing advanced research rather than being lured into university administration.

This research holds at least three implications. One, the importance of institutional posture (attitude) towards and targeted support for talented young researchers. Two, the value of bringing in enabling international networks and affiliations for early career academics. And three, the need for a considered strategy that retains promising black researchers in high-level research for as long as possible.

Competing interests

We have no competing interests to declare.

Authors' contributions

J.J.: Conceptualisation, methodology, data collection, sample analysis, writing – initial draft, project leadership, project management. C.W.: Methodology, sample analysis, validation, writing – revisions, project management. A.W.: Methodology, sample analysis, conceptualisation, data curation. G.M.: Methodology, sample analysis, data curation.

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