

What is a good PhD program in ophthalmology?: Students' perspective

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ABSTRACT

Access to doctoral studies is increasing and the impact of PhD programs is generally understood to be positive. However, the lack of clarity about what a PhD entails can be a barrier to student entry into the programs. During the pre-entry period, students need to consider the reasons for choosing to take PhD and the value expected from it. In practice, this involves complex considerations related to personal, institutional, logistical and PhD program characteristics. As such, prospective students would benefit from a reflection on these factors in advance of registering for the PhD. Realising that there is a limited published literature on what makes a PhD 'good', in this paper we explore the factors that contribute to students' perception of a good scholarly engagement. We use an interview format to report on some broad areas of relevant consideration. We conclude that sustained student motivation, effective supervision, adequate facilities and a supportive environment are pertinent for the learning that makes a PhD 'good'.

Key words: PhD, Doctorate, Doctoral students, Eye health, Ophthalmology

INTRODUCTION

The significance of doctoral studies in the emerging knowledge economy is increasingly receiving international recognition¹. This means that for the Eastern, Central and Southern Africa (ECSA) region to be a serious competitor in the global knowledge economy, access to quality doctor of philosophy (PhD) programs need to increase dramatically to meet current and future demand. This is especially true for the demand for researchers and supervisors for doctoral students. In the area of eye health, graduate medical education (such as residency in ophthalmology) is fairly available in the region, and there is now a modest pool of graduates who may be interested and eligible for PhD studies. The benefits of PhD training are particularly relevant to eye care and to these countries as they are actively building an eye health workforce.

However, uptake of PhD training remains low due to several reasons. Firstly, there is notable paucity of PhD programs that are relevant to the contextual eye health priorities². Secondly, although there are many driving forces to undertaking a PhD, the return on investment for potential students is often unclear, which may deter or delay their enrolment and completion of studies³. The resultant low student enrolment and completion rates means that on the long-term, there are fewer academics with PhDs in the ECSA region. Thirdly, there is limited understanding of contextual factors that

potential students need to consider before choosing a PhD program. This is important to understand, since PhD studies are expensive and lengthy, and a good fit of a PhD program is more likely to lead to successful completion.

This article highlights key considerations for undertaking a PhD, from a student perspective. We aimed to answer the research question 'What is a good PhD?' with a focus on what a potential student might need to know during the pre-registration phase. Our hope is that these perspectives, which are derived from lessons learnt on the PhD, will provide guidance for future PhD scholars. We have proposed eight broad areas of important consideration and we frame them as questions.

MATERIALS AND METHODS

We report on some reflections of doctoral international students studying at the International Centre for Eye Health, London School of Hygiene and Tropical Medicine (LSHTM). The context of the reflection is an informal student discussion during term time. The participants are a convenience strategic sample of students who were in session at the time of the discussion and who represented different countries.

Prompted by the prospect of completion of studies, we discussed about our recent experience. After the discussion, we realised the need to share

these thoughts with an audience of potential students. Thus, we reviewed the themes (domains) that emerged from our discussion. The first theme related to the pre-registration considerations, such as how to choose a topic, an institution or a supervisor. The second theme related to the value of the PhD, for example in life-skills or in increasing employability. Based on these themes, we developed eight questions to guide us with further reflection (Table 1) and documented our responses.

Table 1: Interview questions

Domain	Questions
Pre-registration choices	1. Why should one study for a PhD and how would one choose a topic? 2. What individual / personal characteristics/factors should you consider before registering for a PhD? 3. What are the principal attributes of a good supervisor? 4. How can you choose the university for your PhD? 5. What makes a particular school in the university good for your PhD studies? 6. Does the location of the university matter?
Value of a PhD	1. What transferable skills should one learn during the PhD? 2. What other comments would you give about the characteristics of a good PhD program?

RESULTS AND DISCUSSION

We present the findings and discussion in an interview format here below.

Simon Arunga

1. **Simon, why did you choose to study for a PhD and how did you choose the research topic?**
I love research and always wanted a career in research. I did my PhD to develop skills as an academic to be able to do this independently. Being an ophthalmologist and clinical lecturer at

Mbarara University of Science and Technology, I also wanted to better my chances of growth and promotion at work.

The first surgical procedure that I performed as a resident was an evisceration in an eye with severe keratitis. The spill over impact of this was that I developed great interest on the cornea. Thus naturally I had a predilection for research on corneal pathology. Meeting Prof Matthew Burton who has a similar interest reinforced the inclination to corneal research.

However, after registering for the PhD at the London School of Hygiene and Tropical Medicine, it took me almost whole year to settle down on the specific research question that I was going to pursue for my work on 'microbial keratitis in south-western Uganda'.

2. **What individual / personal characteristics/factors should you consider before registering for a PhD?**

One should be highly motivated to go all the way. PhD is a lot of work with no immediate remuneration. There needs to be a strong social/family support: if one has a partner, the partner buy-in is key. If the PhD is to be done in a different setting from where one is working, there needs to be local support to give the person time away to focus on a PhD such as a study leave, duty coverage etc. Some level of knowledge in research methods and analysis is good but this can also be learned during the PhD Journey.

3. **What are the principal attributes of a good supervisor?**

They should be motivated to support you and walk the talk. They should be knowledgeable in that area to guide key literature and publication plans, make time to discuss with you, approachable, patient. Having a supervisor who becomes a friend is a great bonus.

4. **How can you choose the university for your PhD?**

This usually depends on the supervisor, the topic and your home situation. You want to get a university where you can get as much support as you need. I did my PhD at LSHTM because that is where my supervisor is based and I could not find a local supervisor. However, it was flexible in allowing me to do my fieldwork in my home country rather than staying in London for all the three years.

5. **What makes a particular school in the university good for your PhD studies?**

Support is key in terms of being able to access all the additional training and resources that you need. Good universities invest heavily in support staff, skills training for their candidates and access to online resources.

6. Does the location of the university matter?

Not really as long as there is flexibility. For example, I would not do a PhD away from my home where I have to stay at that particular institution for 3-4 years.

7. What transferable skills should one learn during the PhD?

As many as one can possibly do. However, you do not want to be running from training to training just for the sake of it. Usually one should sit down with his/her supervisor, do a skills appraisal, and target the relevant skills to learn.

8. What other comments would you give about the characteristics of a good PhD program?

Time is one of the greatest resources during a PhD process. A good PhD program should prepare and train you to manage this effectively.

Furahini Mdeme

1. Furahini, why did you choose to study for a PhD and how did you choose your topic of study?

From an early stage, I knew I wanted to reach the highest academic level possible. My father had always talked to me about studying with dedication and obtaining three degrees, and I was determined to do that.

I completed my fellowship in paediatric ophthalmology shortly after my residency in ophthalmology. As the sole paediatric ophthalmologist at Kilimanjaro Christian Medical Centre, I serve a large population and operate on a lot of eyes with paediatric cataract. With congenital cataract, the visual outcomes are not very good mainly because patients present to us late. This constant challenge has been a compelling driver towards research that contributes to finding a solution. Thus for me it was not difficult to choose 'congenital cataract in Tanzania' as the focus of my PhD.

PhD study as an intervention should increase participation in eye health research, which should have a positive contribution to prevention of visual impairment and blindness. I would encourage more people from the African continent to take an interest in PhD studies.

2. What individual / personal characteristics / factors should you consider before registering for a PhD?

It is prudent to consider the availability of the preferred course, the costs involved, the availability of appropriate supervisors, whether it is a full term or part-time basis, whether it is local or foreign-based, the time commitments and the impact on the family.

3. What are the principal attributes of a good supervisor?

A good supervisor is empathetic, interested in supporting the student's development and willing to consider the student's point of view. Should also offer constructive challenges that enables the student to raise standards. The supervisor should have a level of openness to enable sharing relevant personal experience with the student, in an atmosphere of mutual respect, trust and confidentiality.

4. How can you choose the university for your PhD?

The availability of the course, costs, the mode of study, as well as the availability of sponsorship and supervisors are important considerations.

5. What makes a particular school in the university good for your PhD studies?

The school should have a reputation for effective teaching and should have experienced faculty and supervisors. They should also have the required learning materials and the required courses relevant to the PhD should already be in place.

6. Does the location of the university matter?

Yes. Some students would prefer to study close to family while others would prefer to be away, some would have specific preferences for the country or city of study as well.

7. What transferable skills should one learn during the PhD?

How to apply for research/project grants. How to identify appropriate funders for research and projects. Skills in statistics and epidemiology. Any skills that you will need in your research.

8. What other comments would you give about the characteristics of a good PhD program?

A good PhD program has the right inputs in terms of human resource (good supervisors, good statisticians), infrastructure (good recourse library, books, and reliable internet connectivity) plus a well-organised and regular transferable skills program.

Hillary Rono

1. Rono, why did you choose to study for a PhD and how did you choose your research topic?

I have always wanted to do a PhD. Taking the Masters in Public Health for Eye Care at the London School of Hygiene and Tropical Medicine further inspired me and prompted me to apply for PhD positions. I wanted to understand research in public health, and participate in generating, documenting and passing knowledge to the next generation. I was interested to develop ideas to full

programs, critically appraise research and use the evidence to support individuals, institutions and the government.

My initial research interest was on trachoma. This is what I researched on during residency, and I prepared research proposals for a PhD on this. My second research interest was the intersection between ophthalmology and technology. I loved physics in school and I have always had an interest in engineering (in addition to medicine). Ophthalmology gave me opportunity to apply some of the concepts in physics. Then as an ophthalmologist, I realised that there was a unique need for technologies. A unique opportunity to take this up was available and there was stakeholder interest in this research. This is how I moved to work with Peek interventions and research on 'smart-phone based screening for visual impairment in Kenya'.

2. What individual / personal characteristics / factors should you consider before registering for a PhD?

You should be curious and self-motivated, creating time for it, choose an area of study of your interest, aim to solve a real need, be tolerant, have good interpersonal skills and balanced in life, check if the current environment at home / work place is it supportive for study and consider your future career path.

3. What are the principal attributes of a good supervisor?

A good supervisor should be available, supportive and encouraging, interested in your area of research, and has the skill set that you need or is in a team that can expose you to the skills needed (for example, the development team at Peek are good in information technology which I need to progress). The supervisor should also demonstrate a level of flexibility and sensitivity to the local environment where the student works – can allow time off to meet emerging needs. The supervisor should also have published some papers.

4. How can you choose the university for your PhD?

You would consider the reputation of their degrees and the acceptability of the degree in your county. Having international reach and multiple PhD programs also provides enrichment to your own program.

5. What makes a particular school in the university good for your PhD studies?

The school should have the faculty or access to faculty with the important skill sets for research, such as statistics, epidemiology and the technical expertise in your area of study. They should have the infrastructure and equipment necessary, such as a library and computers. There should also

be arrangements for access to other areas that provide an enabling environment such as hospitals or libraries.

6. Does the location of the university matter?

The location of the university should be near enough to reduce cost of travel and far enough to reduce interference from your daily work routine. The environment should also be peaceful so that one can move around without fear.

7. What transferable skills should one learn during the PhD?

These include skills for literature search, presentation and public speaking, writing skills and teaching skills (especially if you are in a training institution) and skills for lobbying to funders.

8. What other comments would you give about the characteristics of a good PhD program?

The program I am enrolled in is a good PhD. It allows for a balance between normal routine work and academic work and work environment. I would also emphasize that PhD students need guidance but should not be spoon-fed. Beyond anything else, it is a learning experience.

Nyawira Mwangi

1. Nyawira, why did you choose to study for a PhD and how did you choose your topic of study?

Each potential student who gets shortlisted and invited to typical PhD registration interview is asked this question. My motivation arose from multiple factors. First, I had an inner personal drive to take a PhD. I had also taken some research modules and undertaken research projects before the PhD, which helped me develop research skills. Further, I had interacted with some PhD students and supervisors earlier on during Master's programs. I got a preview (to some extent) of what PhD study should enable you to do. I anticipated that it was going to be both challenging and fun.

I now wanted to pursue a sustained path of research on a specific topic, so as to generate new knowledge, acquire new skills and make a specific scholarly contribution. I also considered the wider personal, professional and even political implications. For example, I was keen that the PhD should enhance my academic and research outputs.

The significance of recent scientific advances in public health, ophthalmology and health systems intersects in the context of Diabetic Retinopathy (DR). It provides a paradigmatic model of how these disciplines can mutually reinforce the prevention of visual impairment from DR. This area has not yet received sufficient research attention. It is from this lens that we are exploring 'diabetic retinopathy in Kenya'. So far, I have enjoyed it.

2. **What individual / personal characteristics / factors should you consider before registering for a PhD?**

Consider why you are taking the PhD, the opportunity cost of the PhD (what else you could be doing or involved in instead of the PhD) and the return on investment that you expect to get from the PhD (what you expect to gain for every unit time or finance invested). The PhD should have value to you, beyond pecuniary terms.

3. **What are the principal attributes of a good supervisor?**

A good supervisor is experienced in the area of study, is able to see both the big picture and the small picture, and promotes scholarship, personal development, and professionalism. Feedback to the student is especially helpful. The supervisor understands the strengths of the students, and tailors the amount of push or independence that is optimal.

4. **How can you choose the university for your PhD?**

Find out as much as you can about the university that you are considering. Check the website. Check the research that they are involved in and the research output ranking. Talk to your supervisor or mentor, and to current students or alumni of the university. If the university runs any Massive Open Online Course (MOOCs), participation in the MOOC may give you some insights. Generally choose a university that is reputable and is already running other PhD programs.

5. **What makes a particular school in the university good for your PhD studies?**

You can consider the research focus of the school, as well as the faculty in the school. Most universities publish this information on their website. Talking to current students or alumni of the school is invaluable.

6. **Does the location of the university matter?**

Your convenience is important- in terms of accommodation, security, travel, cost of living, access to the broader academic community, amenities and distance from family. As there are pros and cons for any location, no single location can satisfy everyone, you have to make concessions.

7. **What transferable skills should one learn during the PhD?**

These include academic skills, peer review and publishing, statistical skills, information technology skills, grant application, finance management, research skills, implementation skills and creativity. These skills are learnt in the course of PhD-related activities, or in transferable skills courses. The Vitae Researcher Development Framework⁴ outlines these skills.

8. **What other comments would you give about the characteristics of a good PhD program?**

As a student, you need to be ready to become invested in your research project (doing it, writing it and discussing it). You also need to embrace creativity and independence as a learner. The role of an advisory team should not be underestimated. This team is composed of the supervisor(s) and additional members who are invited because they have specific complementary skills to guide the PhD study and research.

CONCLUSIONS

A good PhD is characterised by specific skills development, and this requires a motivated student, quality supervision, adequate facilities and a supportive environment. Doctoral studies provide both a personal and a societal benefit. We advocate for greater enrolment into doctoral studies that have significance for eye health. It is necessary to develop shared meaning about the value of PhD studies. There is also need to eliminate any barriers that stand in the way of increasing the pool of doctorate students, the availability of the courses and the pool of faculty that can support the courses in our institutions. Future research might explore the perspective of supervisors on what makes a good PhD student.

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