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Innovative Models for Early Career Researcher Involvement in a Research Institute

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Abstract

Early career researchers (ECRs) are upcoming researchers who aspire to be fully engaged in conducting research. Young professionals who are interested in research usually face challenges, which are discouraging especially in developing countries. However, there are innovative opportunities for enhancing research capacity by individuals and institutions when certain conditions established. The contemporary pattern of research in many countries are ineffective towards improving the knowledge and skills of early career researchers, who may not have access to mentorship, collaboration, research skills learning and practice, and grants for research. The aim of this review article, is to enlighten ECRs on the innovative methods that could be explored by early career researchers in order to surmount the challenges in the pathway to involvement in research within a research institute. Innovative models of research capacity, namely, higher education, errand-researcher, stage-observer, reaching-out, reward-delay, soft spot, and government models, which evolved from evidence are explained in this article. To conclude, The ECRs need to take extra steps in order to explore new methods for robust research capacity enhancement.

Keywords: Early Career Research, Innovative Research, Research Models.

Introduction

An early career researcher (ECR) is in individual who has obtained a higher university education (usually a doctorate degree), and who focuses on establishing herself in a chosen research discipline [1-3]. Many early career researchers (ECRs) have interest in research, while other professionals do not see much benefits in research. Training in different disciplines, and working in diverse settings by professionals worldwide may contribute to the divergent research capacities among individuals and institutes. Research institutes utilize research as a major tool to develop their capacity, while other organizations may not explore research much before they enhance their expertise, output or profit. Furthermore, the diverse features within which organizations operate can affect their perspectives about research, either in terms of the need for it, or the extent to which they can engage in it.

A case in point is the health sector, where research, has remained a major method to improve human health. However, many health professionals are not able to access research due to different challenges they face. As different approaches have been known to enhance research capacity of ECRs and institutes, they appear not to be producing sufficient positive outcomes especially in developing countries. This essay explores evidence-based methods of enhancing research capacities, while introducing innovative ideas hereby used to develop seven (7) innovative models which ECRs can utilize to enhance their research capacities.

Contemporary Trend in Research

Research by early career researchers is usually initiated by academic or professional training demands, and sometimes by organizational requirements. Many ECRs who have interest in research face challenges in their quest for developing their research capacities. Undergraduate research in most climes is conducted due to it being a prerequisite to obtain an institutional degree. Postgraduate research, in addition to being a requirement for obtaining an academic degree or professional qualification, can lay the foundation for career-long research. However, the fundamentals of research often pose challenge for the ECR.

On the one hand, it is usually uneasy for a group of ECRs to form a team without at least an experienced / senior researcher in the team, or for guidance. This inclusion of a willing senior researcher among the inexperienced ones is not a common trend especially in developing countries, except in situations where the experienced researcher is willing to serve as a mentor.

On the other hand, the experienced researchers do form teams of interested and actively involved co-experienced members with which they conduct research, which can go beyond their institution or country. This team formation technique enhances research capacity among researchers, and appears to be a common method of developing a career-spanning research hub within departments, colleges, universities, and organizations.

However, there exist a disconnection between the experienced and the inexperienced (ECR) groups of researchers in many countries. The gap needs to be bridged by the senior researchers who need to play the leading roles by helping to mentor and teach the skills of conducting research to the (aspiring) researchers, who in turn, need to develop an unwavering zeal for research, in order to be guided through the journey of research evolution to become established researchers who can then conduct independent and standard research.

Challenges and Barriers to Research

Various barriers have been identified to pose challenges to the conduct of research among professionals. These include inadequate or lack of interest, non-availability of time among younger researchers, insufficient mentors, limited time by faculty, paucity of research skills among trainees, lack of established curriculum for research, and insufficient funding [4-6]. The barriers can contribute to inadequate research training and insufficient exposure during the period of training of resident doctors and other junior professionals. If the aforementioned obstacles are properly explored and utilized as avenues to enhance research among young and aspiring researchers, the trend of low level of research among institutions in developing countries can be reversed. Interest could be enhanced by adequately educating young professionals (who aspire to become ECRs) on the benefits of engaging in research for them to be aware that the benefits are multi-dimensional.

Benefits of Research

Evidence has shown benefits of research to the: (a) Patients (promotes evidence-based medicine, improves patient care, and enhances the creation of new therapies); (b) Medical students (supports career progression, facilitates the development of critical thinking skills); (c) Resident physicians (greater residency satisfaction, improves clinical performance, and facilitates career progression); and (d) Institutions (increases institution rank, increases nationwide appeal for grants, and contributes to fulfilling accreditation agency requirements). [7]. Thus, the benefits of research are not limited to the researcher alone, but extend to all the stakeholders connected to research in a community. Therefore, young and early career researchers need to be stimulated and mentored in order to be involved in research for the benefit of all.

Consolidating on the Known Methods to Enhance Research

Training program leaderships can provide academic support and technical guidance for trainees. Academic support entails creating research curriculum, and forming pairs with experienced researchers. Examples include initiating journal clubs, statistics lessons, data analysis trainings, and making research as an elective in curricula of institution courses. Establishing didactic sessions focusing on research skills, such as biostatistics, research methods, how to obtain approval from Health Research Ethics Committee (HREC), and providing training on manuscript writing can enhance trainee confidence and interest in research.5,6 Training institutions and departments can pair trainees with senior researchers and faculties who are experienced and successful mentors [8]. In addition, encouraging trainees to engage in research, by writing manuscripts (review articles, or case reports initially), and then progressing to presenting posters at conferences, is vital in improving research among ECRs.

Based on the evidence stated, training institutes can establish wider research communities that encompass trainees across all the disciplines, which can become larger research hubs for the ECRs. Teaching ECRs about the various aspects of research by researchers from various fields of expertise would change the view that each ECR have about research, as they will develop wider perspectives to, and broad skills in research.

Innovative Models for Early Career Researcher Involvement in a Research Institute

1. The Higher Education Model: Establishing research as a sub-discipline within higher education systems can translate into research being established as a course in a higher institution. We (A.O.A, O.O and S.A.M) have coined the higher education model, which we describe as a model that can lay a solid foundation for higher institution learners from the undergraduate level to the postgraduate level. This step would encourage aspiring researchers to acquire in-depth knowledge and skills in research, far beyond the scope of learning research within a single discipline. This step entails the establishment of research centres within universities and other higher institutions of learning. Creating a (sub)discipline of research as a course to be studied would attract research experts from various disciplines in higher institutions, who would bring their different proficiencies to the fore, for aspiring early career researchers to explore. This can enhance collaborations across disciplines especially those that have interconnections with one another. For instance, pharmacists and physicians within a university can partner in establishing a robust research institute within or outside a university system. Similarly, engineering researchers and clinician-scientists can collaborate in research focusing on developing medical equipment.

2. The Errand-Researcher role model: Early career and aspiring

researchers need to understand that in order to enhance individual self-capacity in research, one can follow the path of playing the errand-researcher role, which we coin and describe as the status occupied by a junior researcher who intends to learn from experienced researchers by facilitating research procedures such as following up with ethical approval application and obtaining procedures, data collection, observing in data analysis and result interpretation, while observing the scientific / academic knowledge and skills display, thereby directly learning about research. Although, the reward may not present itself from the early engagement in such activities, it will definitely pave the way for reaping enormous, and likely immeasurable benefits for the errand-researcher who does not give up. Such an aspiring researcher may not have her name among the author list in initial research papers, but considerable researchers, who want to be mentors may later engage the early career researcher in future research studies as a co-author, since the individual as shown deep interest by taking up the errand-researcher role, which in reality, is not an easy shoe to step in. The role under normal circumstances, should be taken up by the junior researcher by volunteering to assume the role. This self-propelled role is likely a reliable indicator that the junior professional is willing to learn about research. Most research experts usually have taken up the role previously in their early careers as well.

3. The Stage- / Show- Observer Model: This model refers to the ECR serving as an observer at academic conferences / seminars where the research information is disseminated to the academia / professional audience. We named this model as stated, and explained it as observing the research stage / show, which can stimulate insights and focused research interests within ECRs. Attending scientific conferences as an ECR may not be easy in many countries, especially where there are no sponsorship opportunities available. However, (aspiring) ECRs should try to view research and career progression far beyond what their discipline trainers are teaching within their training institutions. Attending conferences aligning with one's discipline can boost morale and enhance interest in research by younger trainees irrespective of whether the trainee's seniors encourage her or not. This approach, though demanding in terms of time and financial resources, can be a stepping stone for those who take the step. The ECRs will be able to meet experienced researchers, other ECRs (or young aspiring researchers), and mentors, who can help to channel the right course for an early career researcher. This method would connect an early career researcher to established research groups, or institutions, thereby, accelerating the course of consolidating knowledge and skills in research. For example, pharmaceutical companies who present their products at health conferences can connect with clinician-scientists more easily at conferences, thereby creating opportunities for early career researchers in attendance. The participation of early career researchers in the presentation of abstracts at conferences can enhance the confidence of ECRs working with senior researchers in conducting research. When they are provided with such opportunities to showcase their talents, the ECR are bound to improve as they attend more conferences, and listen to more presenting researchers, and thus learn about the various steps, processes and methods of conducting research. Although, attending conferences usually demand finance and time, which may not be readily available to an ECR, (s)he needs to develop interest and prepare for conferences when they are advertised.

4. The Reaching-Out Model: Pairing with external and experienced researchers who are not within a trainees' core faculty or institution can be explored for mentorship on research. We describe this model based on a professional demand by an ECR to reach-out to other researchers far beyond one's comfort zones. Research has different faces to it, especially as the conduct of research in various disciplines are different though similar in nature. For instance, if a physician (who is an ECR) engages in research being conducted by a social scientist, (s)he can be able to learn how qualitative research is done from another perspective rather than learning it from a senior physician-scientist alone. Seeking collaboration with established researchers in research-advanced climes can help to enhance the quality of research activities and capacities in a local research institute. This model can help to initiate multi-centre studies with a wider expertise involvement and broad population or settings of study, which can make research studies to be more robust.

5. The Reward-Delay Model: The method of delaying reward as a researcher may be difficult for most ECRs to adopt. We designate this model as one which entails an ECR to focus on learning and engaging in research processes / steps being conducted by senior researcher(s) who may not reward the ECR by including an engaged ECR as an author in a paper. An individual ECR might have volunteered to participate in research activities in which he might have carried out technical activities / work, and even make some professional contributions, which the principal researcher(s) / investigator(s) may consider to be insufficient for the ECR to be made a co-author. The ECR should not be discouraged by such perception of the senior researcher(s), because the ECR's involvement will be enhancing his research skills even if it is not yet being rewarded. It may also reflect that his senior researcher wants the ECR to learn fast, and develop the necessary skills before she can be given a co-author role, which can be a form of encouragement when viewed from another angle.

6. The Soft Spot Model: We describe this model as one which entails that an ECR learns about the various types of studies and their designs, and then the ECR can start from the simpler types (soft spots) of studies initially, and then progress to the more demanding ones. For instance, learning about academic writing can enhance the writing skills of the ECR, who can then explore Review article writing on special topics for abstract presentation and journal publication. Furthermore, Case report writing for physicians, can be an avenue to explore, before embarking on a more challenging journey of conducting more complex studies with designs based on Clinical trials.

7. The Government Model: Research needs to be understood as a pathway to development in any society. Therefore, the leadership of countries, states, provinces and local governments need to invest in research, thereby encouraging young professionals and early career researchers to engage in it. Providing rewards by government institutions in the form of grants, educational funds, and conference sponsorships to individuals and research institutes can enhance research interest among ECRs, thus, providing a robust platform for the development of research capacity in nations globally.

In summary, all the above-stated novel models for involving an early career researcher in a research institute are hereby pro-

posed as explorable methods that could help the early career researcher in developing research knowledge, skills, and overall capacity that are not only beneficial to the individual researcher, but also the research institutes and the society at large.

Conclusion

Research in any society needs unwavering interest by the academia / professionals who would become early career researchers in research institutes. Surmounting the challenges often faced by the early career researcher requires both self-driven efforts and external supports. This essay explored and presented innovative models namely, higher education, errand-scientist, stage- / show- observer, reaching-out, reward delay, soft spot, and government models; which could be used individually, interconnectedly, or collectively to promote the participation of early career researchers in research institutes.

Conflict of Interest

The authors declare no conflict of interest.

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