NOTES FROM THE FIELD

Mentorship for operational research capacity building: hands-on or hands-off?

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Mentorship is a key feature of operational research training courses run by the International Union Against Tuberculosis and Lung Disease and Médecins Sans Frontières. During the recent South Pacific paper writing module, the faculty discussed 'hands-on' mentorship (direct technical assistance) vs. 'hands-off' mentorship (technical advice). This article explores the advantages and disadvantages of each approach. Our collective experience indicates that 'hands-on' mentorship is a valuable learning experience for the participant and a rewarding experience for the mentor. This approach increases the likelihood of successful course completion, including publishing a well written paper. However, mentors must allow participants to lead and take ownership of the paper, in keeping with a first author position.

Mentorship has been defined as 'providing an enabling relationship that facilitates another's personal growth and development'.[1] Strong academic mentorship is a key feature of the operational research (OR) courses run by the International Union Against Tuberculosis and Lung Disease (The Union) and Médecins Sans Frontières (MSF).[2,3] The OR courses consist of three separate, interlinked modules each of 5 or 6 days' duration: Module 1 focuses on developing a research protocol, including ethics considerations; Module 2 focuses on electronic quality-assured data collection and analysis using open access software (EpiData, Odense, Denmark); and Module 3 focuses on preparing a paper for submission (with the participant as first author) to a peer-reviewed journal and linking research to policy and practice. The teaching format for all three modules includes lectures, small group break-out sessions with mentors, and plenary sessions where participants present their work to the group and receive feedback from mentors and peers. Between Modules 1 and 3, specific milestones (submission of the protocol, completed ethics forms and EpiData files and submission of proof of data collection to course coordinators) must be achieved within pre-determined time frames for participants to proceed to Module 3. A scientific paper must then be submitted to a peer-reviewed scientific journal within 1 month of completing Module 3 for the participant to fulfil the requirements of the course and be entitled to receive the course certificate.

Most courses have 12 participants. In Modules 1 and 3, there are usually eight mentors working in four pairs, with each pair mentoring three participants. Each pair often has a senior and junior mentor, with the latter learning their craft from the senior, more experienced person. For Module 2, there are usually just four mentors, one for three participants. Mentors assist participants to develop their protocols and papers through iterative, side-by-side teaching that involves the sharing of protocol and paper versions through e-mail exchange. Between modules, and after Module 3, mentors maintain contact with their participants to help with data collection and analysis, paper writing, handling peer review and, in the event of rejection, preparation of the paper for an alternative journal. Due to their involvement and facilitation with protocol design, data collection and analysis, and paper writing, mentors share co-authorship of the final paper with the participant. A question arises as to which is the best approach to mentorship: the 'hands-on' or the 'hands-off' approach? In the present paper, we explore the advantages and disadvantages of each approach in writing a scientific paper.

ASPECT OF INTEREST

Let us assume we are in the 5-day Module 3 and we are writing a scientific paper.

'Hands-on' mentorship

The 'hands-on' mentoring approach works as follows. The participant writes the first draft of each section of the paper in the standard order (Background, Methods, Tables and Figures, Results, Discussion, Abstract, Title Page, Acknowledgements). Each section is sent to the mentors for their input. The primary mentor works with the participant in an iterative way to revise the text as required, either using track changes or over-writing the text. This is done through discussion and with the full consent of the participant. The amount of mentor-writing varies considerably depending on the participant's writing ability. Once a section is finished, it is saved and then sent by e-mail to the secondary mentor for input. This process is repeated for each section of the paper, with versions accumulating during the week until the final paper is ready on Day 5. By this time there may be up to 20 versions, depending on the number of iterations required.

The 'hands-on' mentor thus acts as a direct technical assistant and, depending on the experience and

writing skills of the participant, the mentor's contribution to the paper will vary from being substantial to contributory. The advantages and disadvantages of this approach are shown in Table 1.

'Hands-off' mentorship

In the 'hands-off' mentorship approach, the participant develops the first version of each section of the paper in the same sequence as previously described. This version is passed on to the mentor, who reviews it and then discusses with the participant how the section should be changed. However, the mentor does not make the changes – these are left for the participant. There is very little direct writing input from the mentor, as the participant writes most of the paper

him/herself. The 'hands-off' mentor thus acts as a technical advisor, and tries to ensure that the advice is taken for each section of the developing paper. The advantages and disadvantages of this approach are shown in Table 2.

DISCUSSION

Effective mentorship is a critical component of the success of the OR courses. However, the art, skills and implementation of mentorship are not easy, and for every mentor the approach will depend on each mentor's philosophy of education and training, and his/her assessment of the abilities of the participant. While studies evaluating the role of mentorship in general

TABLE 1 Advantages and disadvantages of the 'hands-on' mentorship approach with respect to the paper writing module and completion of the operational research course

Advantages:
- The participant sees at first-hand how a seasoned writer (the mentor) crafts the sentences, arranges the narrative flow in logical order, includes relevant information and keeps the word count as low as possible – this can be a valuable learning experience. This approach is in keeping with learning principles which emphasise the transfer of skills needed at the time to solve a current problem
- The writing of the paper progresses relatively quickly and, usually by the end of the 5-day module, a near-final draft is ready for dissemination to co-authors
- Mentors can ensure that an acceptable quality of writing is maintained throughout. This is particularly important when English is not the participant's first language or when the participant has not previously participated in scientific writing
- Taking an active part in writing each part of the manuscript and seeing how it is shaped by an experienced writer provides the participant with a sense of achievement and an understanding of the scientific rigour required to write a paper
- It is likely that the paper will be submitted on time, and therefore the final milestone will be reached and the participant will pass the course
- It is likely that the paper will be of sufficiently high quality to be published in a peer-reviewed journal
- Being first author on a published paper brings credibility to the participant
- The participant's first authorship contributes to the defined outputs of the training courses and supports the case for further funding from donors

Disadvantages:
- There is a danger that the mentor might 'do for' the participant rather than 'do with' the participant, especially if the mentor is too directive
- The participant may provide too little input and either feel disengaged from the process or not fully appreciate the effort or work ethic required to produce a quality paper
- The participant could pass the course and produce a published output (the scientific paper), but not have achieved sufficient skills to perform or complete self-initiated operational research in his/her own setting
- The perceived standard and value of the course may be diminished if the participant passes without meeting minimum levels of skill and commitment

TABLE 2 Advantages and disadvantages of the 'hands-off' mentor approach with respect to the paper writing module and completion of the operational research course

Advantages:
- The participant is in control and does all the writing
- More experienced participants may gain new skills and confidence through being challenged to take a very active leadership role in writing the paper
- The participants craft the scientific messages on their own and may feel more empowered and responsible to act on the results when returning to practice

Disadvantages:
- The writing of the paper can progress slowly and by the end of the 5-day module there may not be a near-final draft. This can be a problem if mentor and participant are separated geographically and both return to demanding jobs
- For the inexperienced writer it may be very difficult to translate the mentor's advice into practice. The standard of writing achieved may not be acceptable, resulting in difficult discussions around the appropriateness of submission for publication
- There is an increased likelihood that the paper will not be submitted on time. The final milestone may thus not be reached, and the participant will fail the course
- An unpublished paper is a disappointment for the participant, and this may be a deterrent for undertaking further operational research or attempting to write another paper
- An unpublished paper reflects unfinished operational research and might be perceived as a waste of resources for the donor supporting the operational research capacity building course.

have been published,[4–8] we can find no published work on mentorship in OR, and, in particular, mentorship for writing a scientific paper.

In both the 'hands-on' and 'hands-off' approaches, the participants meet the criteria for lead authorship as they are foremost in designing the study, data collection and analysis, and are thus the primary authors in writing the paper. It is our collective experience that 'hands-on' mentorship provides participants with a better chance of successfully completing the OR course and getting a paper published. However, there is a risk that the mentor does more of the writing than the participant and that the participant has less sense of ownership. A careful balance thus needs to be struck. Participants must do enough of their own work to learn from the experience and to feel ownership of the first author position, while mentors must ensure adequate quality of writing. The final paper needs to reach a high enough standard to do justice to the research and to have a good likelihood of publication. Certainly, a capable participant will require less 'over-writing' by the mentor, but others will require more. It is thus crucially important for the mentors to acquire a clear understanding of participant capability at the beginning of the week.

Does 'hands-on' mentorship work? Feedback from participants indicates that observing mentors write is a valuable learning experience and meets learning needs. It appears to ensure success in publication,[3] and we hope this will promote an enthusiastic embrace of OR by public health workers, which is the ultimate aim of the course. Whether participants develop the necessary skills to undertake OR and publish on their own after the course is another question, and one for which at present we do not have the answers. However, we are now carefully following up those participants who have successfully completed courses to assess how well they do and whether they can progress on their own. We will report on this in the future.

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Le tutorat est un élément clé des cours de formation à la recherche opérationnelle organisés par l'Union Internationale Contre la Tuberculose et les Maladies Respiratoires et Médecins sans Frontières. Lors du récent module consacré à la rédaction d'articles dans le Pacifique Sud, la faculté a discuté des mérites comparés du tutorat pratique (assistance technique directe) et du tutorat moins actif (conseil technique). Cet article explore les avantages et inconvénients de chaque approche. Notre expérience collective montre que le tutorat pratique est un outil d'apprentissage précieux pour le participant et une expérience gratifiante pour le tuteur. Cette approche accroit les chances que le cours soit suivi jusqu'à la fin, notamment la publication d'un article bien écrit. Les tuteurs doivent cependant laisser les participants conduire la rédaction de l'article et se l'approprier, en accord avec leur position de premier auteur.

La tutoría es una de las características principales de los cursos de capacitación en investigación operativa de la Unión Internacional Contra la Tuberculosis y Enfermedades Respiratorias y Médicos Sin Fronteras. Durante un reciente módulo en el Pacífico Sur sobre la redacción de artículos científicos, el cuerpo docente analizó las modalidades de tutoría 'práctica' (asistencia técnica directa) y tutoría 'teórica' (asesoría técnica). En el presente artículo se examinan las ventajas y desventajas de cada enfoque. Según la experiencia colectiva de los autores, la tutoría 'práctica' representa una valiosa vivencia de aprendizaje para los participantes y una experiencia enriquecedora desde el punto de vista de los tutores. Este enfoque favorece la finalización exitosa del curso, que incluye la publicación de un artículo científico bien redactado. Es importante que los tutores permitan que los participantes lideren y se apropien del artículo, en conformidad con la posición de autor principal.