

Report of the New Researchers' Committee of the IMS

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1. Introduction

The New Researchers' Committee (NRC) is an ad hoc committee of the IMS, created to assist the IMS in understanding and meeting the needs of new researchers (NRs). The current membership is 10 researchers all of whom received their doctorate within the past 7 years. The membership of the committee is primarily academic, but includes researchers in medical research, industry and government. This report is based on the consensus of the committee, developed by introspection, and informal polls of NRs.

The committee's perspective is that people choose research careers because they enjoy research, and hope to make meaningful contributions in statistical or applications areas. NRs are defined as people who are in the first few years following graduation.

The NRC recognizes that the IMS, through its publication policies and professional meetings, provides substantial assistance to NRs. The purpose of this report is to make more explicit the concerns of NRs, and how these concerns are, or could be, addressed by the IMS and its members. The NRC would like to thank the IMS for providing this opportunity to voice some of the needs of NRs. The NRC hopes that the IMS will help publicize the concerns of NRs by publishing this report in one of its publications.

The remainder of the report is in 4 sections. Section 2 is a discussion of issues directly related to IMS activities, in particular, publications and professional meetings. Section 3 is a discussion of issues in which the IMS can play an advocacy role. Section 4 is a discussion of areas in which the IMS membership can, as individuals, assist NRs. Section 5 is a set of action items recommended by the NRC.

2. IMS Publications and Meetings

The IMS, as publisher of 4 journals in the fields of statistics and probability, and the sponsor of at least 3 meetings annually, is in a unique position to promote publication and conference attendance by NRs.

2.a. Publication

Many NRs feel that they must "publish or perish." However, NRs lack experience in doing research, writing research papers, and reviewing the work of others.

Editors and associate editors appear eager to assist NRs, and some NRs have benefitted substantially from special efforts by associate editors to obtain timely and helpful reviews. The NRC has been informed that it is the specific policy of some IMS journals to provide this type of assistance to NRs. The NRC applauds these efforts, and encourages all journals to follow suit.

As well, the NRC hopes that editors will formulate a policy of discarding or rewording referee reports which are abusive in tone. NRs are disproportionately discouraged by such reports, compared with senior researchers, because they do not have the experience to put them into perspective.

The NRC believes that the interests of NRs are best served by improving the refereeing process. Special journal sections, special editors, and similar schemes were felt to be against the best interests of NRs, as they can be interpreted as venues for less competent work.

An early draft of this report has generated considerable debate about the merits of double blind refereeing. In the current system, the author is known to the referee, but the referee is unknown to the author. The NRC recommends that the identity of the author(s) also be hidden from the referee. The NRC feels that the current system has the potential for bias against NRs, women, and identifiable minorities, (a disproportionate number of the latter two categories are NRs) and that the merit of a paper should be determined by its contents, rather than its author(s). Although bias has not been demonstrated in statistical publications, evidence for bias against women has been demonstrated in other academic fields (Billard, "The Past, Present, and Future of Women in Academia," Proc. of the ASA Sesquicentennial Invited Paper Session, 1989, 645-656.).

A double-blind refereeing system, in which the associate editors know the identity of the author(s), but the referees do not, is a simple solution to the problem. Although some referees may be able to recognize some authors from the references or style, (as some authors currently may recognize some referees,) most submissions will obtain a more objective rating.

Double-blind refereeing has already been adopted by other statistical associations, in related contexts. In June 1990, the Editorial Board of the Canadian Journal of Statistics adopted double-blind refereeing with the consent of the Board of Directors of the Statistical Society of Canada. Technometrics allows an author to request double-blind refereeing. The student paper competition sponsored by ENAR of the Biometrics Society uses double-blind refereeing.

2.b. Professional Contacts and Meetings

Attendance at meetings is an important means for NRs to keep up with new work, make contacts, and make their own work known. Sessions which focus on single topics can be an important way for an NR to break into a new research area. However, NRs often lack travel funds to go to meetings, and are seldom asked to give invited talks or chair sessions.

Some statistical associations have special sessions for graduate students and/or NRs. While the NRC recognizes the positive intent of the organizers, the committee feels that NRs are better served by being integrated into the main conference program, so that their work is given equal footing, and is presented in the context of other work in the area.

It has become usual for IMS conference organizers to request funding from granting agencies to assist NRs to attend IMS meetings. The availability of this assistance does not appear to be widely known, however. The recent IMS Bootstrap meeting provides an exemplary model of how IMS conference organizers can assist NRs. NRs were invited to speak in every session. NRs chaired several sessions. Travel assistance was available for NRs. And low cost accommodations were provided preferentially for NRs, and others unable to afford the regular accommodation. As a result, NRs were very well represented at the meeting.

Special topics meetings, such as the IMS Bootstrap meeting, are an important means for researchers to get an overview of currently exciting topics, and opportunities for research. Because of limited funding, NRs frequently bypass special topics meetings. The NRC therefore proposes to sponsor a special session (or sessions) at each annual meeting, which will focus on a single, current topic, with the goal of providing an overview, and outlining directions for research. The organization of this session is described in section 5.

3. The IMS as Advocate

Research requires the allocation of time and money, and is therefore affected by political and social settings. The IMS can assist NRs by acting as their advocate in the political process.

3.a. Funding Agencies

NRs often have little experience in writing grant proposals. They and their work are not well-known, so they are at a disadvantage in the peer review process. Their resources for travelling, supporting visitors, purchasing equipment, and paying assistants are very limited. In many academic situations, summer funding is available only from grants or extra teaching, so the NR must devote research time to proposal writing.

For NRs, small annual sums can go a long way towards promoting research opportunities. The NRC points to the Canadian system as an example of how full year appointments, plus a system of small, less competitive grants, can benefit NRs.

In the U.S., there are a number of special grants available for NRs. However, on the whole, these are highly competitive programs, in which a few researchers receive a great deal of money. The needs of new statistical researchers could be better served by programs which guarantee far fewer funds to far more researchers. These funds should be administered on a competitive basis based on a short proposal description.

The NRC asks the IMS to encourage funding agencies to sponsor small, less competitive, grants for NRs.

3.b. Thesis Format

Most NRs begin their research careers by submitting their thesis results for publication. Often, there are difficulties in splitting theses into journal articles; when there is considerable delay, the NR may be held back from starting new research.

NRs quickly discover that most of the writing skills they learned in preparing monograph style dissertations are of little help in writing publishable articles. For this reason, we suggest that more emphasis be given in graduate school to writing publishable articles, which can then be consolidated to form a thesis.

Alternatives to the traditional book-length dissertation are currently being considered by a committee formed by the Council of Graduate Schools. We urge the IMS to act as an advocate for alternative thesis options in statistics and probability.

3.c. Family Policy

Women and single parents with young children are at a particular disadvantage in the promotion process. This is especially true in countries like the United States without legislated family leave. Lengthened time to tenure for new parents could easily be accommodated by the current tenure system. Some employers allow job-sharing, or part-time positions; these possibilities should be considered, along with appropriately adjusted promotion procedures, among the options for keeping NRs in the field.

The IMS can act as an advocate promoting more generous family policy.

4. The Role of the IMS Membership

Most of the work of the IMS is done by the general membership on an individual, volunteer basis. Similarly, much of the assistance the IMS can offer to NRs will be done on an individual, volunteer basis, by colleagues, supervisors, and others, such as those involved in the peer review process, who have professional contact with NRs.

4.a. Work Environment

Very few positions involve only research. NRs are still in the process of learning strategies for handling teaching loads, advising students, consulting with clients, handling committee tasks, and for delegating tasks to their support help. They may, therefore, spend more time than senior researchers on nonresearch tasks even when tasks have been distributed equitably. As well, research related tasks

such as writing up results and preparing grant proposals may take longer for inexperienced NRs.

Professional colleagues, particularly those in the same department and the department chair, can be of great assistance to NRs. Offers to lend lecture notes, read drafts of papers, assist with grant applications, and other mentoring activities, are generally very helpful.

Many NRs expressed concern that the majority of their time was spent on nonresearch tasks, but that they are being evaluated primarily on their research. Also, although consulting duties are frequently expected, NRs often do not receive proper recognition for their contribution to applied research. The evaluation and promotion process should be clearly understood by both the NR and the supervisor. It should be understood by both parties that job duties should be assigned the same priority that they are given in the promotion process. If consulting is expected, these contributions should receive weight in the performance evaluation.

Advisors can assist their students prepare for research careers by providing them with opportunities to prepare for the nonresearch aspects of their careers. Those headed for academia need to gain class-room teaching experience, and consulting skills. It is also useful to chair seminars, and referee and write papers. Those headed for government, business or other nonacademic positions need to gain consulting and managerial experience.

A reduced workload in the first few months of employment are a valuable aid to an NR, particularly if assistance is also offered in setting up a research program. The load on the NR may be reduced, without increasing the workload of others, by allowing the NR to repeat tasks already mastered, for example, to teach the same course for several consecutive semesters, or sit on the same committee.

NRs are often excluded from decisions which influence their work environment, such as assignment of teaching duties, or committee assignments. NRs need to be involved in such decisions. Decision making in the department should be organized to include NRs whenever possible. Conversely, time-consuming committee work, not directly involving the work environment, may unnecessarily hamper NRs

4.b. Funding and Proposal Writing

Many research positions rely on some funding outside the employer institution. Traditional outside sources include government agencies, industry, charitable foundations, and special interest groups. NRs are at a disadvantage in competing for such funding, due to lack of experience and reputation.

Senior researchers can assist NRs to become involved in the competitive funding process early in their careers, by inviting them to write joint proposals, and to referee proposals written by others.

Outside funding is often used to supplement funds provided by the employer. NRs will be better prepared to start research early if the employer provides start-up funds for meeting immediate needs. Computing equipment, summer funding, and travel money for one conference annually should be guaranteed for at least two years.

Employers who encourage researchers to solicit funding can assist by providing professional support for such activities. Such support may include advisors, files of funding agencies and their interests, and so on.

4.c. Starting New Research

NRs may find it difficult to branch out to new areas after intense concentration in their dissertation research. They are under considerable pressure to publish, and may be reluctant make the time commitment needed to start in a new area. Due to lack of experience, NRs may also have difficulty in identifying fruitful areas of new research.

Joint research with a senior researcher is a time-honored method for starting in a new area. Visiting an institution active in the new area is also helpful. Senior researchers who actively solicit NRs for joint research and as visitors assist greatly.

Because promotion generally depends on completed work, not current projects, adequate allowance must be made for start-up time for new projects. A periodic review provides a time to discuss the relative merits of beginning new work and finishing up previous projects.

4.d. Research Facilities

Most NRs use computers in their work, either for computation or word-processing. NRs in nonacademic settings may also have limited access to reference facilities. Proper facilities are essential for NRs to perform to their full potential. Senior researchers must support efforts to improve facilities for NRs, even if their own work does not rely directly on these resources. In the long run, improved facilities benefit everyone.

NRs should be involved in departmental decisions about equipment purchases. As well, if NRs are involved in joint funding proposals, equipment purchases for the NR should be part of the budget. Sharing equipment is also a possibility, especially if someone in the department has underutilized equipment.

Support of computer bulletin boards and databases, such as the computerized Current Index to Statistics, is becoming increasingly important to the statistical community, and benefits NRs.

4.e. Family Commitments

The changing family structure places special time demands on NRs which conflict with research needs. NRs must balance their own employment needs with the career commitments of working spouses.

Many NRs have young children, and are either solely responsible for child care, or share responsibility with a spouse. Even when the spouse is the primary caregiver, the NR may have responsibilities beyond those of our senior colleagues, when they were at the same life stage. As well, NRs may have responsibilities to older, ailing, family members.

The onus is clearly on the NR to organize his or her life to accommodate all commitments. However, department chairs often have discretionary powers regarding family leave and tenure policy, which can be used to assist NRs. Family related policies should be stated explicitly to all applicants during the interviewing process.

Departments should be as flexible as possible in scheduling commitments such as courses and committee meetings, and allow researchers to work flexible hours

whenever this does not conflict with their duties. Department duties and seminars should be scheduled during the regular 9-5 working day, to avoid conflict with day-care schedules.

4.f. Contacts - Formal and Informal

NRs sometimes underestimate the usefulness of the informal contacts gained by attending department gatherings, having lunch or coffee with colleagues and so on. NRs can expand their local contacts formally, by presenting seminars at their own, and local institutions, and at chapters of professional associations. They should join and participate in professional organizations. They should make special efforts to attend, and present papers at, professional meetings. Senior colleagues can assist by including NRs in these formal and informal activities.

Collaborative research can serve as an apprenticeship for NRs, training them to approach new subject areas, write fundable proposals, and produce publishable papers. As NRs are often reluctant to approach active people in their area, it is helpful if senior researchers take the initiative.

5. Action Items

The NRC asks the IMS Council to support the following action items.

5.a. Publications

A. Expand the scope of IMS publications to include more applied and computer intensive research.

Efron, in his 1988 President's report, (The IMS Bulletin, 17, 375-376) suggested a shift in emphasis for the IMS journals towards applied and computer intensive statistics. This shift is also suggested by the results of the 1975 membership survey. Since NRs are more likely than their senior counterparts to be engaged in applied and computer intensive research, such a change of emphasis would be beneficial to them. The NRC has been informed that the IMS and the American Statistical Association have been discussing the feasibility of co-sponsoring a journal focusing on statistical computation and graphics. The NRC urges the IMS to participate in this endeavor.

B. Determine the merits of double-blind refereeing for IMS publications, and implement double-blinding refereeing for appropriate journals.

The NRC feels that technical papers should be judged solely on their contents, and that this can be facilitated by hiding the identity of the author from the referee. Bias, real or perceived, can be eliminated by this readily implemented means. However, double-blind refereeing may be less appropriate for papers which are primarily speculative or discussion. Editors and associate editors should continue to know the names of the authors, in order to avoid inviting reviews from persons with a conflict of interest, and so that additional assistance can be given to NRs by the associate editor (in the form of editorial advice).

The NRC recommends that the merits of double-blind refereeing should be seriously considered by IMS editors. The means of implementing double-blind refereeing should be determined by the editorial boards of each journal.

C. Improve the refereeing system.

NRs need prompt, detailed, and constructive referee reports. Delays of more than 6 months in the return of referee reports are unnecessary. For NRs, who are under considerable pressure to publish and who may be uncertain of the direction their research should take, this is not just an annoyance, but a critical problem.

Reports should be written to assist the researcher in revising the paper or expanding the research to make it more suitable for publication, by suggesting the direction of the revisions, indicating sections that need to be cut or expanded, or suggesting specific areas in which the research is inadequate. Advice should be specific and friendly.

The NRC recognizes the assistance that has been given to NRs by IMS editors and associate editors. We recommend that IMS editors establish guidelines for referees for providing helpful and timely reviews to NRs. NRs can then identify themselves to the editors in their cover letters, so that the editor can send the guidelines to the referees. Emphasis should be on helping NRs learn to write publishable papers.

D. Utilize NRs as referees and provide feedback to assist in learning about the peer review process.

The NRC recommends that IMS editors include NRs as referees. New referees would benefit by receiving the material which is returned to the author or other feedback. This aids in understanding the refereeing process, which is helpful to the NR both as author and as reviewer.

5.b. Meetings

E. Invite NRs to speak in invited sessions.

One of the best means to gain exposure in the statistics community is to present a paper at a meeting. Invited sessions attract larger audiences and more established researchers than contributed sessions, and are thus a very effective means of gaining exposure. Special invited sessions for NRs are an additional burden for organizers, and are not as effective as integrating NRs into the regular program.

Organizers of invited sessions should be encouraged to use the dissertation titles published in the IMS bulletin as a resource for identifying speakers. This assists NRs in smaller departments with fewer informal contacts. As well, established researchers are often aware of NRs working in their areas, and can be encouraged to forward names to organizers.

We recommend that IMS policy encourage including at least one NR in every invited session.

F. Sponsor "mini-conferences" on currently active areas of research at IMS meetings.

The NRC proposes to organize a "Hot Topics" session at the annual IMS meetings. This would be organized along the lines of the longer special topics conferences sponsored by a number of organizations. The goal is give to researchers an overview of a topic of current interest in the statistical community, including both work in progress, and suggested areas for further research and to promote contacts, and research in this area.

The session will be in two parts. In the first part, a keynote speaker will give an hour long overview of the topic and the current state of research. This person could also provide a bibliography. The second part would consist of two half hour talks focusing on current research activity and open problems within the chosen topic.

A subcommittee of the NRC will choose each year's topic and organize the session. An NR, chosen competitively from submitted abstracts, will be included as at least one of the non-keynote speakers. Abstracts will be solicited through advertisements placed in the IMS Bulletin, and other publications read widely in the statistical community.

The NRC recommends that they be allocated a spot on the program of the annual meetings for this purpose.

G. Invite NRs to chair sessions.

The NRC recommends that NRs be invited to chair sessions at meetings.

H. Solicit more travel funding for conferences.

IMS conference organizers have often solicited funding to assist NRs to attend meetings. The NRC recommends that this funding should be expanded and publicized.

I. Provide low cost housing at meetings, with preference given to those who cannot afford regular accommodation.

NRs can often find partial funding to attend meetings, particularly if presenting a paper or chairing a session. However, accommodation at meetings can be a major expense. The NRC recommends that conferences be held at sites with adequate low cost accommodation. such as university dormitories, nearby, and that such housing be made available preferentially to those in financial need.

J. Provide child care information at meetings as part of the local arrangements.

Local arrangement committees routinely provide lists of local services to conference attendees. The NRC recommends that child care information be added to the information provided.

5.c. IMS Participation

K. Include NRs as members of IMS committees.

NRs benefit from the contacts and professional experience gained by participating on professional committees. The NRC recommends that each IMS committee recruit NRs.

6. Acknowledgements

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