

EARLY CAREER

The Early Career Section is a new community project, featured here in the *Notices*. This column will provide information and suggestions for graduate students, job seekers, junior academics of all types, and those who mentor them.

Journaling

By Robert Lazarsfeld



A later installment of this series, in March, will focus on writing up mathematical research. Here I want to advocate the benefits of regularly writing it down. I don't refer to the universally recognized importance of committing to paper all the details of one's arguments. Rather I want to suggest that maintaining a record of mathematical activity can be a valuable catalyst to productivity and research.

For the past thirty years, I've made it a habit to keep a mathematical journal or diary. At least when administrative or other duties haven't pulled me away from research, I try to write an entry every few days recording what I've been up to mathematically. Sometimes this consists of notes from reading, sometimes a summary of ideas from collaborators, and sometimes a record of little exercise-level statements that I've worked out. I find it especially valuable to set down questions or observations that strike me as meriting further thought. By now I've accumulated several thousand pages, originally in bound notebooks but more recently in electronically accessible form. My recollection is that I first heard about keeping a journal from Mark Goresky, although I've since come to understand that they are relatively common.

What are the benefits of mathematical journaling? We all understand that research can be frustrating, and that one can go for many weeks or months without obvious progress. But recording the various things one tries—if to only to explain why they don't pan out—at least yields the satisfaction of generating concrete output on a day-to-day basis. More importantly, the very act of writing often seems to have a stimulative effect: after working on a journal entry for an hour or so, I frequently think of additional questions to ask or approaches to try. Moreover if and when the moment comes to put a problem aside, it's valuable to have a record of one's work even if it hasn't led to a published paper.

In principle the intended audience of these journals is me alone. However when I'm involved in a project with a collaborator, sending a few journal pages is a good way to

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DOI: <http://dx.doi.org/10.1090/noti>

communicate. I've also found that questions I've worked on inconclusively sometimes make good research starting points for students or postdocs, and in these instances it's useful to have written notes to provide. Finally, in reflective moments it can be amusing to relive decades-old mathematical trains of thought—although like looking at baby pictures of one's grown children, one can end up feeling a bit old and nostalgic.

So—spend a few minutes to decide on a format that works for you, and then start your new mathematical journal. You'll be glad you did!



Robert Lazarsfeld

Credit

Author photo by John Lazarsfeld.