

# Learning Sessions: more work, less shop?



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In four columns published in 2014 and 2015 in the *IMS Bulletin*, Vlada Limic made a case for organizing events different from the familiar mathematical workshops (which are, in effect, small conferences). She proposed something closer to workshops in certain other disciplines (like classical guitar playing): events where the focus is more on work—meaning getting your hands dirty, becoming seriously involved with new material, trying to learn something new—and less on the “shop” part of workshop, i.e., the familiar show-off of whom you are working with, what you are working on, what your results are, with a hint of the techniques involved.

When Rongfeng Sun, Matthias Birkner and I got the chance to organize a month of activities at the Institute for Mathematical Sciences in Singapore (<http://ims.nus.edu.sg/events/2017/gene/index.php>) which was held in July–August this year, we took Vlada’s blog as an inspiration to split the central two weeks in two halves, with a usual workshop in the second week (August 7–11), and something we called **Learning Sessions** in the first week (July 31–August 4). This was not quite the format suggested in Vlada’s blog from Nov 17, 2014, although it was loosely inspired by it. Since it may be of wider interest to see how this worked out, let me describe our experiences here.

Before I embark on this, it is probably fair to say that although, in view of various constraints, workshop talks often manage to convey only a vague idea of the mathematics involved, this is not true in general. As a whole, I have learned a lot from listening to talks. There have even been memorable talks where I walked away from with the feeling that I could immediately start working on a topic that just an hour earlier had been completely unknown to me. In some cases, I did. Such talks are rare, but since we have only just so much energy and time to write a few papers per year, at most, we don’t need many such talks.

Also, there already exist events with other formats than workshops, that are more aimed at teaching and learning: summer schools, mini-courses, and the traditional *Arbeitsgemeinschaft* that is held twice each year in Oberwolfach, to name a few. Partly inspired by these, and partly by Vlada’s ideas, we came up with the following format for our Learning Sessions. We envisaged nine

sessions, each lasting half a day. Topics could be both classic material and new, cutting-edge results. Half a year before the sessions, we drew up a list of possible topics based on suggestions from the participants and from ourselves. We then asked participants which sessions they would like to present or participate in, and organized the nine most named themes.

To each session, based on the preferences of the participants, we assigned two or three “moderators,” whose task it was to prepare the material to be studied and then, during the session, to give an introduction to the topic and bring up questions to be discussed. As a rule, we did not allow moderators to be authors of the papers to be discussed. Other than that, the level of expertise varied: some moderators had been familiar with their topic for many years, while others had to learn something completely new.

In certain respects, the Learning Sessions turned out different from how we expected. We had suggested that participants should not attend all sessions, but focus on up to four sessions of their choice. In the end, though, most participants went to most sessions. This may have been partially due to the fact that, although our format did not guarantee that this would happen, we were lucky that the chosen topics formed a coherent whole, with many cross connections between different topics.

In the months before the Learning Sessions, there was some discussion about the amount of preparation that could (or should) be expected from the participants. In the end, we decided not to put pressure on them, except for recommending some preparation, and also did not require participants to register for sessions of their interest. A quick, informal survey afterwards suggests that most participants did not invest much time preparing for sessions they intended to attend. This was probably also due to the fact that for most sessions, there was little material available that could be studied beforehand, except for a list of articles. In the end, two sessions created lecture notes, but these were available only a week or so before the start of the sessions. In addition, for one session, two volunteer participants were appointed in advance who prepared short presentations on chosen topics.

Our original idea was that each session would consist of an introduction by the two or three moderators, followed by a structured discussion moderated by those same, as the name suggests, moderators. In the end, there was very little discussion, probably due to a combination of factors:

1. It is hard to think of good themes to discuss in a group, in the limited time span of, say, an hour.
2. Since in the end most participants went to most sessions, the number of attendees at each session was quite large.

3. Many moderators found out that in order to present the material in a way that went a bit deeper, they needed (almost) all their allocated time, which was 160 minutes.

There was some good news: in spite of turning out somewhat differently than expected, it seems fair to say that most participants agreed the Learning Sessions were, yes, quite a success. So what worked well, and what did they achieve?

First of all, it seems people really learned, and learned a lot. The moderators, who all really put a lot of effort into their presentations, in fact themselves learned a lot from this; especially those who presented a topic that was new to them. The presentations, approximately two and a half hours long, really managed to delve deeper into the material than an ordinary workshop talk. In addition, they were not hindered by the need to quickly go over a lot of “well-known” results, that may not be so well-known to the audience, in order to come to the (often rather specialized) new parts the speaker has added.

Also, the Learning Sessions gave plenty of opportunities for interaction:

1. There was interaction between the moderators, who sometimes had never worked together before.
2. Interaction between different sessions, revealing new connections, which in at least one case (mine) led to a new project and a new collaboration.
3. As a co-moderator of my session, I also interacted with one of the authors of the articles under discussion, in the form of email and Skype discussions.

I now come to a more speculative point, which I nevertheless want to make: I believe, based on the points above, and also on the feedback of many participants, that the format of the Learning Sessions is more effective than a usual workshop when the aim is to inspire new research and start new collaborations. Of course, there are only so many projects a person can be involved in, and apart from initiating new projects, finishing them is also important and usually more time-consuming. Nevertheless, for the often-stated aim of stimulating new research, it may be worth considering the format of the Learning Sessions, or something in the same spirit.

Compared to summer schools and mini-courses, our Learning Sessions were shorter, allowing for more diversity, while compared to workshop talks they were still long enough to allow in-depth coverage. An unusual feature (which, however, is similar to the German *Arbeitsgemeinschaft*) was that speakers were not authors of

the results presented. This has a number of potential advantages:

1. Non-authors can potentially offer a more fresh look on a subject, colored by their own experiences, and may have more feeling for the difficulties a beginner may encounter when trying to master a new topic.
2. This set-up can lead more easily to interaction between moderators and authors, and between one moderator and another.
3. The moderators who prepare a session potentially learn a lot themselves.

On the other hand, newcomers to a subject may have trouble getting to the core of matters, and even occasionally misrepresent or misunderstand part of the articles they are meant to explain. However, if this happens, does this not also point to the fact that not all articles are equally good at getting their message across, and hence strengthen the case for getting more people involved in spreading new knowledge?

Time will tell if our Learning Sessions will be a one-off experiment, or part of a larger move to find new ways of sharing new mathematical developments. For those who are interested in trying something similar, based on our experiences, we can offer the following bits of advice:

1. It seemed that sessions were especially successful if the moderators already had some, though perhaps not too much, prior experience with the subject.
2. It is worth thinking at an early stage about how much preparation can be expected from participants and what kind of material, if any, should be made available to them by the moderators for this aim.
3. If some sort of preparation is required, then it may be good to set deadlines to the moderators for when the preparatory material should be made available.
4. We probably profited from the fact that there is a functioning community in our sub-field of probability so that people trust each other and are (sometimes after a bit of nudging) willing to put in work for the community. Organizing a similar event with complete strangers may be harder.

And finally, a last point, that may be obvious but is still important:

5. We recommend that you should feel free to experiment and try something new. In our experience, it is fun to do and the result can be very rewarding!

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