Publish or perish…

Running the road to publication

Maya Schuldiner

מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

Succeeding in your research work is important

- Emotionally – We all want to succeed in what we do
- Scientifically – We all became scientists to add something to human knowledge so discovery is why we do it…
- Practically – Success of a project can bring it to the stage of a publication

Why is it important to publish your work?

- We all want to contribute to human knowledge and if we do not publish our work we can not do that. Work that has not been published is invisible to the world
- Our work is funded by the public – publishing new knowledge is how we pay back society
- We need papers to progress in academic life (get positions, grants, fellowships etc…)

Hence, if you do not know how to wrap up your story into a paper then it does not matter how good a scientist you are

So how do you increase the chances that your hard work will result in a publication?

Tip 1: Become an expert in the field

- When you become an expert in the field you ensure that you are working on a relevant question with the best methods.
- To become an expert in the field you must read as much as possible the relevant literature
- You can also attend conferences.
- Another great way is to write a review as it forces you to read much of the literature in the field and allows you to gain a broad perspective.
- Review papers are also a great way to tell the scientific world that you are interested in a specific field.
- Reviews also enrich your publication record as they take less time to write than any “data” paper.

Tip 2: Collaborate

- Learning to collaborate in science is important as many projects nowadays can not be completed by a single group or person.
- It is OK not to be an expert in all the methodologies. Having a collaboration on your lead-author paper does not reduce the credit you will get.
- Good collaborations can help you finalize your projects faster or can help you contribute to other projects.
- Collaborative papers show that you know how to work in a team.
- The best collaborations enable people to perform experiments that they are experts in but would be challenging for others.
- BE CAREFUL: don't substitute the success of your own, lead, project with success of many other small projects. Don't invest too much time to become a co-author on a paper.

Tip 3: Don’t put all your eggs in one basket

- Depending on your personality it is often better to have two projects in parallel than one single big one.
- Two projects can either give rise to two papers, may come together to support one big paper or save you if one project fails.
- If you have one project make sure you have different approaches to prove/study your question of interest.
- Always try to show a result in a couple of ways – if you succeed it is more rigorous and robust, if you fail in one you will have the other as a backup.

Tip 4: Behave differently at different stages of your project

The Butterfly stage: flutter between projects and questions, explore the possibilities…

The Rhino stage: charge forward in one direction and don't lose sight of your goal

Special thanks to Sebastian Springer and Venkat Ramnayaran for this great metaphor

Tip 4: Behave differently at different stages of your project

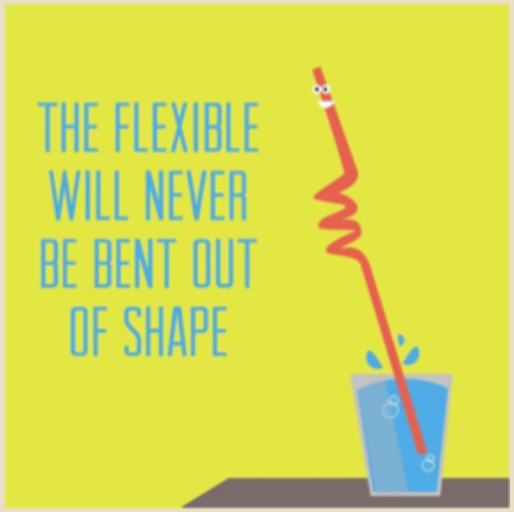
Often at the beginning of scientific projects you have to chart the territory – assaying different directions and possibilities like a butterfly checking out which are the best areas of a field or which flowers give the most pollen.

Once you have found the right question/tools/direction, you must know how to change your mode and charge forward like a rhino – this helps you move quickly and in the direction you want to go. At this stage, avoid temptations to stray off path, check out something just because it is interesting or exciting and try to move your project forward in the direction that you have charted.

Tip 5: Plan, plan and then plan some more

- Once you are at the Rhino stage – planning is highly important to know what is the best route forward and not to waste energy charging in the wrong direction.
- Before every meeting with your PI, every group meeting or talk etc… think – what do you want to say in your project/paper
- Plan out the figures that would be nice to have
- Are your experiments taking you in the right direction to finalizing a paper? If not then don't do them.

Tip 6: Don’t take your plans so seriously



- Every time you do an experiment your plans may change depending on the outcome
- Keep an open mind
- Don’t fall in love with your plans
- If a result changes your thinking/direction/hypothesis take time to rethink what you want to say/what figures would you want/what is the most important experiment right now

Tip 7: Be realistic about the time things take

- Most scientists (especially PIs) are overoptimistic about the time it takes to do things.
- When you plan too much you get really stressed, you often feel a failure and you can let yourself and others down.
- On the other hand if you don't do enough you won't succeed….
- So learn to be realistic about how long it takes to do something (write a paper, finalize a project, run an experiment, search for a postdoc).
- For example – take into consideration that nowadays it is at least 1 year to get a paper published in a good journal.

Tip 8: Only do experiments that will give you a definitive answer

- **BEST:** Type 1: An experiment in which a positive result (the test uncovered evidence of what it was set up to find) or a negative result both tell you something about the phenomena that you are studying.
- **OK:** Type 2: If you get one type of result (either positive or negative) then it enables you to say something about your phenomena but the other type of answer does not allow you to make a claim about it.
- **DON'T DO:** Type 3: Neither a positive nor a negative result informs you of your system. You might be surprised at how many of your experiments are of this type….

Tip 9: Don’t do all that you CAN do

- 100 years ago each lab had their own unique toolbox
- Nowadays everyone can do nearly anything and is sometimes even expected to.
- In the 21st century our worry is no longer what experiment we CAN do but what experiment we SHOULD do.
- Don’t do all the experiments that you CAN do or you will drown in a ton of data that is not moving you forward.

Tip 10: Do the next most important thing

- You have a plan
- You know what you want to say
- What is the “killer experiment” that would now be best to do?
- If at any point you do the next most important thing then your project will move forward and you won’t lose track of your goals.
- Recalculate once in a while – At times something that seemed important in the past is now no longer so acute…don’t waste time just because you previously thought it should be done.
- Accept “sunken costs” – sometimes you might have spent months trying to do something that is now irrelevant. If so, don’t waste more time on it…

GOOD LUCK!

And don't forget that the most important thing is that your paper should be something that you can be proud of. And so, no matter if it is big or small – high or low impact - make it solid, accurate and reproducible. In our endeavor to understand life, every piece of the puzzle of science is important and if you can help build this puzzle that is A LOT.

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