The cold research reality of needing a safety net

(Susan Gasson and Lauretta Grasso)

Having a safety net or a "Plan B" is all part of having a sound research project plan, and is always critical in the precarious world of research where we don't know what we don't know, and the path to new knowledge is sprinkled liberally with uncertainty and failure.

However in 2020, Covid-19 has been a dramatic reminder of the need to be able to rapidly accommodate changing external environments, whilst continuing to move forward towards major goals, specifically, graduating with your PhD!

For example, in "Covid times" those doing research projects involving international travel, or data collection requiring close proximity to human participants will have found themselves unable to progress their project in the way that was originally planned. In order to progress towards the goal of completing the project, it is clear that a well-considered "Plan B" or safety net would be required.

So what should your safety net look like? Below are a few points for consideration when designing a research project safety net.

1. "Plan B" is a normal part of the research process. It is about being alert to external environment and factors that you can't control, and the resources available to manage your project strategically. A well prepared "Plan B" ensures you will finish your PhD and you won't run out of time or funding on the way.
2. "Plan B" isn't a compromise, it is an alternative that responds with academic integrity and rigour when facing a challenge or opportunity. It is a key research skill that you will continue to hone throughout your research life. An open mind is needed create a "Plan B" and to recognise when it is time to engage it.
3. It may involve a change to the nature of the data being collected (e.g. using existing unanalysed datasets rather than generating new data), or how it is collected (e.g. local rather than international sampling, using existing samples); to the theory or conceptual framework informing the research; or even the nature of the research contribution (e.g. meta-analysis of multiple existing studies as opposed to analysis of your individual study), requiring a reframe of the research question.
4. A Plan B isn't an administrative hurdle it is a valued and time honoured research process all good researchers engage in.
5. Stay focused on the big picture, which is to successfully graduate with a PhD or MPhil qualification in a timely way, to be able to move to the next stage of your career!

Below is a short editorial for PhD candidates about research project "Plan B" which you might also find useful. https://onlinelibrary.wiley.com/doi/full/10.1002/bies.201600198

"Chance favours only the prepared mind" (Louis Pasteur)

"In the middle of every difficulty lies opportunity" (Albert Einstein)

"They always say time changes things, but you actually have to change them yourself" (Andy Warhol)

A "plan B": When and how to develop your alternative research project

Andrew Moore
Editor-in-Chief

This one's for the PhD students out there in particular. Do you have a plan B? I don't mean a plan B in terms of career, though that might be in your head too. If it *is*, perhaps it's because you don't yet have a plan B for your research: that is what I'm getting at here. It sounds so simple, and the concept is, indeed, simple, but when the chips are down, and plan A is not going to plan after all, you are suddenly faced with the cold reality of having no safety net. It was easy at the beginning to acknowledge the need for a plan B, but that alone will get you nowhere unless you create a personal understanding of how plan B could be developed, and when.

You could, of course, start two research projects in parallel, but that would compromise your chances of making optimal progress on *both* of them, and unless both of the projects are rather off the beaten track, so to speak, you run a big risk of being beaten by some other research group. Furthermore, this is really just a case of having a project A and a project B, rather than a strategic model for reallocation of efforts and change of direction. One of the classic challenges of research is that it often involves an all-out effort to solve a really significant problem or open question, and hence make a noteworthy mark in the literature. Many PhD students feel that pressure, particularly if they are at top institutes, the reputation of which is staked on putting out a good number of top-notch research papers each year.

Such high-stakes projects often involve a similarly high degree of unpredictability at each step in the larger process. For that reason, it would be unwise to define a firm plan B from the beginning: as we know, unpredictability can hide positive, as well as negative, eventualities. Should, in the midst of disappointing progress, an unexpected eventuality (e.g. an observation) be particularly interesting, it could represent the plan B itself: a branching point in the project, where the original question is replaced by a different, but equally interesting, one. This kind of plan B requires a prepared mind to perceive the unexpected as a potential source of benefit (a combination of Louis Pasteur's "Chance favours only the prepared mind" and Einstein's "In the middle of difficulty lies opportunity"). It also benefits from a willingness to go back through much of your research and see if you can identify a possible branch-point further in the past.

Another kind of plan B involves changing the research approach or methodology rather than the research question itself. Gaining information on the nature of a phenomenon that is not visible to the human eye, or that is physically beyond the reach of direct observation, is a good example of a project that lends itself to such an alternative methodological approach. The interesting thing about this type of plan B is that applying different methodologies to answering a question can produce complementary data sets that synergize to produce a more robust or detailed insight than any on its own. A new field of research can even be created in this way, an example being correlation microscopy between fluorescence imaging and cryo electron microscopy of biological entities.

But what if all research plans fail, and you are just left with a heap of unanswered questions and inconclusive results? Well, this might, indeed, be the end of the road for those particular bits of research – at least for the foreseeable future. However, your intellectual efforts deserve more recognition than that! Think hard now about a plan B in terms of what you might *publish*. Despite lack of progress in generating concrete conclusions, you might have an interesting hypothesis in the making – one that could be well-placed in a journal specializing in theoretical or conceptual work; or you might have identified parts of the field that are ripe for an integrative, synthetic, review: one that creates more insight through integration of existing findings than the sum of the findings on their own. This is the final type of Plan B that I present here, but there are doubtless many more ways of generating one, and I hope that this editorial at least stimulates such thought processes. You owe it to yourself...

Andrew Moore
Editor-in-Chief