

Grants-in-Aid for Scientific Research: Once the Only Funding Source, Now an Essential Funding Source for the Future of Science

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Research theme implemented in FY2015:

Molecular imaging of living cells with metallic nanoparticles
(Specially Promoted Research)

Though probably true for practically everyone from my generation, budgets for research at universities were entirely dependent on Grants-in-Aid for Scientific Research (Kakenhi). At the time, Kakenhi could not easily be utilized, for example, to offset the travel expenses associated with participation in academic conference presentations. Also, given that Kakenhi was a form of grant disbursed on a fiscal-year basis, many recipients were in the habit of heading over to the university cooperative near the end of the fiscal year and using up any remaining budget balance on things like erasers and paper clips. In those days, we did not have the budgetary means to participate in and deliver paper presentations at academic conferences overseas. Expenses for the related travel, lodging, and participation were all something that we had paid on our own. On the other hand, the grant funding that I received from a private foundation was fortunately able to cover my expenses for foreign conference presentations, participation, and travel, and it was extremely helpful. Although I was not really happy with the situation, Kakenhi was the only funding resource that university academics then had available, and that was it. Now that the national universities and the JSPS itself have all incorporated, I would imagine the situation has improved dramatically from an institutional context.

Around that time, Grants-in-Aid for Scientific Research basically followed a two-tiered structure: one for General Scientific Research and the other for Developmental Scientific Research. Full-fledged research was possible if you were fortunate to receive grant funding in both categories. Unless your grant applications were accepted, the research plans into which you had poured so much of your soul and effort would end up as a pipe dream. I was extremely grateful to have almost all of my applications approved. Had I not received any Kakenhi, I probably would not have been able to pursue my research, write any papers, or advance my career.

Upon becoming a university professor, I filed a grant application for a project in the category of Scientific Research on Priority Areas and luckily had it approved. I was 45 years old at that time and the title of the project in question was “Near-field Nano-optics” Thanks to the Kakenhi for this large-scale team undertaking, we were able to establish nanophotonics as a legitimate field of scientific inquiry and help Japan assume a position of global leadership in that field. While this project in Scientific Research on Priority Areas category was under way, I held research camps in a variety of locations around Japan. In the process, I gained new friends and colleagues, enjoyed the participation of advisory committee members, and invited leading scholars from countries around the globe. These get-togethers became nothing less than full-fledged symposia and were exceptionally interesting and fun.

Eventually, Japan enacted its Science and Technology Basic Law, according members of the scientific community instant access to a sudden sharp increase in funding. At least in the context of research funding, national universities that hitherto had been satirized by media in one publication as “a tomb of the intellect” became rich. My two research proposals were selected for the JST CREST program and I served as Principal Investigator (PI) in a project for JSPS Research for the Future Program as well as a project carried out by Osaka University’s Frontier Research Center for Super COE program.

I could not apply for Kakenhi while my own research themes were being adopted for large-scale projects, so I was instead appointed to serve on screening committees for a variety of funding resources including Kakenhi. Best of all, I was appointed a program officer for the JSPS Research Center for Science Systems. That turned out to be a great experience. Administrative staff typically lack insights into the setting for researchers in the field whereas researchers like me often have a poor understanding of administrative rules and regulations. This state of affairs often sparked heated discussion and debate. However, despite their value, serious arguments on that level never reached the ears of politicians, let alone the Ministry of Finance or the Board of Audit of Japan and thus only contributed to an atmosphere of growing frustration. Nevertheless, I was involved in the work of the so-called “summer siege” for which we engaged in the selection of candidate screening committee members as well as the “winter siege” for which we handled the proceedings of the screening committees that reviewed grant applications, and also assisted in the actual application screening process. Accordingly, I spent the entire

year commuting to the JSPS' Ichibancho office, where I enjoyed opportunities to engage in interesting and productive discussions and exchange with scholars from a diverse array of academic disciplines. I found this to be a highly meaningful experience.

Compared to other countries worldwide, Japan is currently experiencing a unique decline in its output of scientific papers. In my view, the time has come to take stock of the roles served by the Science and Technology Basic Law and the Council for Science, Technology and Innovation. Although we have witnessed a stream of new projects backed by massive research budgets, they have been overly focused on limited fields and themes. By contrast, not much funding has been allocated to research with a focus on long-term, future trends. Many research papers compete in terms of their impact factor—the number of citations that they earn in the literature one to two years following publication. This is a shortsighted measure that, if given too much value, can undermine long-range perspectives. Efforts in industry-academia collaboration, moreover, tend to lack venture spirit because they demand alliances between existing corporate giants and established university academics. I don't think these flaws in policy design and guidelines are unrelated to the current stagnation or downtrend in the number of scientific papers originating from sources in Japan.

Sometimes, I have to wonder if the roles served by the JSPS, JST, and NEDO among other funding agencies are all that well-understood by researchers or even the agencies themselves. We have cases where multiple projects seem to overlap or compete with one another, and examples of a single researcher submitting similar research proposals to multiple agencies.

Recent years have been marked by the increasingly careless and casual use of words like “innovation,” “super,” and “global.” In this day and age, Grants-in-Aid for Scientific Research seem all the more essential as a means of support for academics that—as individuals or small groups—are committed to fully exploring new scientific horizons without being preoccupied by the expectation that they demonstrate excellent results. I am convinced that academics in the university setting who are engaged in the task of educating large numbers of students day in and day out and who have limited time and budgets for their own research will be the pioneers that pave the way for the future of science, unfazed by popular trends.