

Informatics Research Fostered by Grants-in-Aid

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In Japan, informatics is a fledgling academic discipline, which has emerged since around 1967 when several research institutes and departments related to computer science and information engineering started to be established. Hereinafter called informatics as a discipline including information science/engineering, software science/engineering, intelligence science and so on. Along with computer and network technologies, informatics has been developing and prevailing very rapidly up to the present. And moreover, it is about to change not only society but the whole concept of social infrastructures and social systems.

At the very first stage, however, since faculties did not receive any education for informatics in itself, it seems that researchers of electric engineering, mathematics and physics were literally seeking methods and theories for informatics with their respective ways.

My background is mathematics, but I could work on informatics from its establishment as a different discipline with existing mathematics since I was an undergraduate student, studying Turing machines, computability, recursive function. Nevertheless, my methods and concepts still tended to be “mathematical”. I believe my participation in a “specially promoted research” Grant-in-Aid project made it possible to begin to advance my research with awareness of issues on informatics, data and computation which informatics originally should target, computers dealing with those issues and people using those computers.

In the 1970s, I participated in two consecutive “specially promoted research” projects for three years respectively, titled Advanced Information Processing of Large Scale Data over a Broad Area and Formation Process of Information Systems and Organization of

Scientific Information. I was involved in both projects as the co-investigator of the Planned Research Group. In actuality, however, I worked on the entire process of the projects, such as conceptualization, planning, research, development, software implementation and preparation of papers and reports without any students. I found that it was a very valuable experience.

I learned a great deal through these “specially promoted research” projects with some competitive spirit, where researchers from a wide range of fields and backgrounds, mainly science and engineering, participated and workshops for each field were held. Voluntary study groups named “Committee” were also formed to explore issues that cut across each project team, in which we engaged each other in spirited discussions. In addition, on-site surveys and study sessions related to overseas research trends were conducted consistently. Through these activities, I believe, research on databases, especially relational database, has made progress steadily in Japan and the basis for the development of research in these days has been formed. Of course, I availed myself of these opportunities to develop my skills, which allowed me to carry out research on information retrieval and databases driven by my own ideas.

I continued to be engaged in a series of specially promoted and priority projects actively, starting with being a member of a Subscribed Research Group and then as a co-investigator in a Planned Research Group and the head of a Planned Research Group, getting responsible positions gradually. Looking back, what seems strange is that each research topic was natural and there was a line of continuity and consistency among those topics such as from information retrieval to inductive inference, analogy and machine learning in artificial intelligence. In this matter, we could have directions and perceptions of informatics, and launched a research project titled Foundations of Knowledge Discovery from Science and Business Information (Discovery Science) which was funded under the Grant-in-Aid category “Scientific Research on Priority Areas (A) with participation of about 60 prestigious researchers in Japan. The project aimed to systematically explore data mining and machine discovery including philosophy of science. From the beginning of the project, we held an international conference named after our project. This conference has continued to be held in a particular country every year even after the project ended.

I also have been deeply involved in the development of software systems. In this field, I received a “Grant-in-Aid for Developmental Scientific Research.” Although this grant

category no longer exists, it was a good system that allowed companies to participate in projects to create concretely targeted products.

The above are the Grants-in-Aid which I have been deeply involved. I believe that Grants-in-Aid in the categories of “Specially Promoted Research” and “Scientific Research in Priority Areas” have played a highly significant role in terms of development of research on informatics and fostering young researchers in this field. Dr. Akinori Yonezawa’s project, named “Research on Implementation Schemes for Secure Computing”, under the category “Scientific Research on Priority Areas,” was especially highly appraised, fostering many talented young researchers. More recently, Dr. Yuichiro Anzai’s project, Information Studies for the Foundation of IT Evolution, has started as “Scientific Research on Priority Areas (C)” which contributes to promote national policies. It was followed by Dr. Masaru Kitsuregawa’s project, New IT Infrastructure for the Information-explosion Era. Those two projects also succeeded in achieving excellent research results and developing talented young researchers in the informatics field. As these various examples show, the framework of the “Grant-in-Aid for Scientific Research on Priority Areas” has been working well for advancing informatics research and fostering researchers and it is the most suitable scheme in terms of efficiency for research and budget, along with the National Institute of Informatics, as an inter-university research institute, creates computer environments and other common infrastructure.

I suppose it is true Grants-in-Aid has made great contributions to the development of informatics. As far as my personal skills, though, it is no doubt Grants-in-Aid has developed me as a researcher. In my gratitude, I had participated in a “research-funding committee” where we studied and deliberated matters related to research financing including Grants-in-Aid for several years up to January 2011.