

Dr. Camil Bourchard
President
FRSCQ

22 May, 2001

Dr. Michel Bureau
President
FRSQ

Dr. Sylvie Dillard
President
FCAR

Dear Presidents:

We are writing to you on behalf of the Canadian Society for Brain, Behaviour, and Cognitive Science (BBCS) concerning the recent proposals for the reorganization of research funding in Québec. BBCS represents researchers across Canada who focus on the natural sciences areas of experimental psychology. These areas include work on the brain, such as basic neuroscience and behavioural neuroscience, work on perception and cognition (broadly called cognitive science), and work that focuses on behaviour in humans and animals, such as animal learning. The majority of our scientists receive funding from NSERC (GSC 12: Psychology: Brain, Behaviour, and Cognitive Science), and work as university professors in departments of psychology.

Although BBCS represents researchers working in the natural sciences areas of psychology all across Canada, this letter was prompted by the concerns of our Québec members, who will be most directly affected by the policies associated with the reorganization of science funding in Québec.

First, we wish to express our appreciation for your efforts to improve and harmonize funding for research in Québec, and we hope that the reorganization will enhance the research capabilities of Québec psychological scientists. We are in particular agreement with the policy position outlined in the preamble to the document entitled “Harmonisation de la programmation des trois fonds subventionnaires du Québec.” Here, it is proposed

that research funding should be based on the goals of the research rather than on preconceived ideas about how particular disciplines are defined. In particular, we fully support the view expressed in the following passage: “les chercheurs d’une même discipline (ex. économie) fréquenteront alternativement les trois fonds selon que leur objectif relève des sciences de la santé, des sciences naturelles ou des sciences sociales.” We believe that this view is particularly apt and important for the discipline of psychology.

The reason for this view is that psychology is a particularly broad discipline that spans the entire spectrum of research work, from basic natural science (e.g., brain sciences, neuroscience, brain imaging, neuropsychology, cognitive science, perception, cognition), to health science (e.g., clinical psychology, applied neuropsychology, health behaviour), to social science (e.g., social psychology). In BBCS, our work is primarily in the natural sciences areas of psychology (that often have little direct bearing on health issues), although many of our members also have separate research programs that have important implications for health and include components funded by CIHR

In this context, Québec members of BBCS are concerned about the apparent lack of explicit programs for basic psychological research within the mandate for Les Fonds de recherche sur la nature et les technologies du Québec (FRNTQ). We strongly believe that it is very important to make a place for basic psychological investigation within FRNTQ to support psychological scientists in Québec whose work belongs squarely in the natural sciences and with no immediate bearing on health or social science issues.

Psychology as a natural science. At BBCS, we are mostly concerned with the basic natural sciences aspects of psychology, coarsely grouped into three major areas: cognitive science, behaviour, and brain research. Cognitive scientists are concerned with fundamental questions that do not necessarily have direct implications for health or social science. For example, they are concerned with problem solving, decision making, learnability, information processing, attention, perception, and memory. The purpose of research on these topics is to understand the fundamental mechanisms of cognition, to develop models of these mechanisms, and to understand how these complex systems function and interact in normal, healthy, individuals. Behaviour is crucial to the adaptation of animals to their environments and thus figures prominently in the study of evolutionary biology and ecology. The observation and analysis of behaviour also provides the empirical basis for testing theories of underlying psychological processes and neural mechanisms. Among the aspects of behavioural science to which our mem-

bers have made important contributions are the study of learning mechanisms, timing, and motoric function. Also prominent among our members are behavioural neurobiologists who marshal methods drawn from the neurosciences so as to explain behaviour in terms of the functioning of neural circuits, cells, and molecules, thus linking behaviour and brain research (the third major area studied by our members). The rapidly developing field of functional neuroimaging draws on all three of these major areas, linking cognition and behaviour to changes in the activation of particular brain regions over time.

Interestingly, research in psychology (funded by NSERC at the federal level) spans almost all of the fields of research in NSERC in general. Experimental psychologists collaborate with colleagues in physics (neuroimaging, audition, psychophysics); chemistry (neurochemistry and behaviour); biology (ecology, animal biology); physiology (hormones, drugs, neurophysiology); computer science (neural modelling, artificial intelligence, computer control systems, virtual reality); systems design engineering (man-machine interfaces, human factors); genetics; and so on.

Research in the BBCS areas of psychology has long been recognized as a component of natural science. At the federal level, a funding stream is provided by NSERC, mainly through the committee called “Psychology: Brain, Behaviour, and Cognitive Science.” We believe that it is of the utmost importance for researchers who work in the natural sciences areas of psychology to continue to have their work recognized as such and funded by the council(s) primarily responsible for research in the natural sciences.

The need for this recognition is important for several reasons. First, the representation of those areas of psychology within the natural sciences community reflects the simple truth that these subareas of psychology are legitimate, full-fledged, scientific enterprises. Their *raison d’être* is neither health nor social science.

A second reason to fund the natural sciences areas of psychology through the council most closely tied to natural sciences research is that the goals of scientists working in these areas often have more in common with the goals of other natural sciences researchers than with researchers in the health or social sciences. The main goals of these scientists are to understand the behaviour and underlying mechanisms of natural biological systems, including animals and humans. While understanding complex biological systems can have useful applications in health research and social science research, this is not the primary goal of these scientists.

Third, we believe that there is a danger for the continued support and development of basic experimental psychology if funding for these areas is not provided through a council with a mandate to fund basic natural science. The goals of a council with a mandate to fund basic natural science differ fundamentally from the goals of councils with mandates to support research on health and society, the many areas of overlap notwithstanding. Restricting the funding of psychological research in Québec to councils with mandates in health and social research will inevitably lead to a significant erosion of funding for the natural sciences areas of psychology, with all the negative consequences that this would entail for the researchers involved, for Québec scientists, and for the community at large.

We believe this is a very real danger, no matter how inclusively the mandates of the new councils will be defined and how broadminded the administrators, referees, and council members. The attempt to squeeze our multiple disciplines into an artificially small number of categories is sure to alter funding priorities, which will distort the direction of basic psychological research in Québec. Work in behavioural neuroscience, animal behaviour, and cognitive psychology is likely to be particularly ill-served by the proposed restructuring because this work will fall furthest from the principal mandate of the council in which it will be housed.

The funding needs of researchers in the natural science areas of psychology differ from those in other areas of our discipline and more closely resemble those of other researchers in the natural sciences and engineering. This is true not only in terms of how operating funds are used but also in terms of equipment needs. Think of the equipment most likely required by a social psychologist trying to understand effects of culture on aggression in contrast with that required by a behavioural neurobiologist mapping circuits in the primate brain. Similarly, the equipment needs of a cognitive scientist building a computer simulation of a complex phenomenon has more in common with that of a computer scientist than that of a social scientist.

The evolution of functional neuroimaging provides a nice illustration of the multifaceted character of psychology and of the benefits that accrue from supporting each of the different facets. The technologies of PET, high-density ERP, MEG, and fMRI provide exciting new ways of linking psychological processes to localized neural activity and its evolution over time. However, these technologies would tell us little in the absence of well-studied experimental paradigms for isolating psychological processes involved in perception, memory, emotion, motivation, decision-making,

language, and action. These paradigms have evolved independently of functional imaging, often long before imaging technology was available, as a result of research into basic psychological processes. At the federal level, most of this research was funded by NSERC. Now that the benefits of this NSERC-style research have been combined with methods developed by radiologists and electrophysiologists, functional imaging methods can be applied profitably in health-related research and social science.

It appears that the new funding model proposed for the Québec councils is intended to mirror that of the federal councils (FRNTQ/NSERC, FRSCQ/SSHRC, RFSQ/CIHR). We note that psychological research on brain, behaviour, and cognitive science is funded through NSERC, the federal council with a mandate to fund research in the natural sciences. It seems transparent to us that an equivalent presence of experimental psychology should be included within FRNTQ.

The conceptual and theoretical problems investigated in the natural sciences branches of psychology are closely linked to those examined in other natural science domains (such as biology) as are the many methodological techniques, especially those in neuroscience. Furthermore, the use of computer simulation and mathematical models links these areas of psychology to engineering, mathematics, and computer science. Indeed, psychological research on vision, motor systems, cognition, and memory has had significant impact on robotics and engineering sciences. Such cross fertilization among disciplines working on similar problems from different points of view (i.e., vision, be it human vision or machine vision) is more likely to occur if like-minded scientists interact in a timely fashion, and such interactions are more likely to be encouraged and developed by granting councils with policies that regroup allied fields.

We also note that students in the BBCS areas of psychology have many opportunities for employment in research laboratories, human factors groups, and industry, and probably more so than in health-related areas.

In summary, we believe that the statement in the ‘harnomisation’ document, quoted above, is particularly important for research carried out by experimental psychologists. We hope that the spirit of that policy view will apply to researchers in the field of psychology. Indeed, we believe, as we have argued in this letter, that there is a very strong case for the need for funding programs for different aspects of psychological research within each of the three proposed reorganized funding agencies in Québec, and not just within FRSCQ and FRSQ. Consequently, we are very happy to

see that programs for psychological research will be put in place within the FRSCQ and FRSQ, but we are also distressed that no such programs appear to be planned for the natural sciences areas of psychology within the FRNTQ.

The Québec members of BBCS urge you to plan for funding programs for basic psychology within the proposed FRNTQ, which would provide optimal funding for the natural sciences areas of psychology in Québec.

Yours sincerely,

Dr. Pierre Jolicoeur
Past President, BBCS

Dr. Lorraine Allan
President, BBCS