



## Editorial

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### Psychology and Innovation

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Knowledge generated by science may bring benefits to society, translated into products or processes destined to improve living conditions. This is a desirable outcome, but it is not the only aim of science. As Uttal (1973) described at the end of the last century, “We can... discern three major sources of motivation for scientific research: 1. Classic issues of speculative philosophy; 2. The unexpected discovery from an undirected exploration of the general environment often due to the introduction of a new instrument; 3. The attempted elimination of some clearly identified obstacle to human comfort, health, or happiness.”

At the intersection between psychology and neuroscience, we can identify these three motivations: (1) in basic research regarding the nervous system and its relationship with behavior, (2) in new directions made possible by new technological or conceptual advances, which are evident, for example, in the application of genetics to questions of psychology and in neuroimaging studies using functional magnetic resonance and other current techniques, and (3) in the application of knowledge from psychology to the development of products and processes in several areas of interaction such as architecture, industrial design, education, medicine, public health, robotics, and image interpretation, among others.

Today we hear a lot about the importance of promoting innovation. In the context of science and technology, innovation is understood as the introduction of technologically new products or processes or the improvement of existing products or processes. Innovation is what moves industrial production and the market of goods and services. It is strategic for both developing and established economies. In Brazil, the very name of the Ministry of Science and Technology was recently changed to the Ministry of Science, Technology, and Innovation.

Is psychology among the disciplines that contribute to innovation? American psychologists asked themselves

this question in 2009 when they realized that psychology was not recognized in this context by the political forces that build and maintain science and technology in the U.S. The American Psychological Association (APA, 2010) organized a task force to study this issue and drafted a policy statement. The document presented by the APA stated, “Psychological knowledge is essential to scientific and technological innovation. Technology requires the use of human operators, and understanding human capacities and limits is essential for implementing technological advances.” The document opens by remarking that, despite the active role played by psychology in the area of technological innovation it is “often excluded from the list of core disciplines responsible for scientific and technological progress—the STEM disciplines of science, technology, engineering, and mathematics.” To be recognized as a STEM discipline means it is eligible for more financial opportunities in research and education. For example, The America Competes Act authorized increases in the 2008-2010 budgets of the National Science Foundation, National Institute of Standards and Technology Laboratories, and the Department of Energy’s Office of Science with the objective of funding research in science and technology and STEM education from preschool to the postdoctoral stage.

Many examples are provided by the APA statement about the role played by psychology in the context of innovation, arguing that it should be included in the STEM disciplines. Psychology has contributed to many diverse areas relevant to society. Psychology has helped to solve problems and to present new solutions in the design of new technologies such as the computer mouse and a more effective toothbrush. It has played an important role in the promotion of public safety through the introduction of the center brake light in automobiles. Psychology has contributed to public health using knowledge from learning and education to promote adherence to medical treatment, smoking cessation,

maintenance of cognitive vitality in aging, and changes in behavior to prevent the spread of HIV/AIDS. Equally important are the contributions of psychology to greater safety in air travel by training pilots to use methods developed by psychologists. Conversely, there are dangers in not considering human factors in technological situations such as in the many disasters caused by human error.

An endless number of examples can be listed to show the integral involvement of psychology in innovation. The report of the APA is very relevant to psychologists at universities worldwide. They are responsible for the education of future professionals who should be made aware of the role and potential of psychology as a core discipline that contributes to innovation in many areas of human endeavor. Recognition of this contribution will depend on the effectiveness of making relevant examples known to scientific policymakers and society in general. This holds true in the U.S. as much as it does in any other country that is concerned with economic growth. In Brazil, this concern appeared for the first time this year within the Brazilian Society of Psychology whose opening address of the annual meeting was

directed to the placement of psychology in the context of science, technology, and innovation.

*Psychology & Neuroscience* is also concerned with promoting psychology as a core STEM discipline. Continuous information exchange between basic and applied research is an important factor in this quest. The current issue illustrates how this bidirectional interaction impacts innovation and application. Nevertheless, we know that much more can be done in this regard. Therefore, we are pleased to encourage our readers to submit their own articles within the area of psychology and innovation so that the latent technology behind psychological science can be increasingly highlighted, resulting in a better quality of life in our society.

## References

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