

Correspondence

Response to Open Peer Commentaries on “Neuroethics and National Security”

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A primary aim of our paper was to initiate a discussion that we think is needed on the ethical applications of neuroscience in national security. Based on the thoughtful, instructive and passionate commentaries we received, this aim was accomplished, and we thank the commentators for their reflections. This is particularly true for those commentators who highlighted themes that we had not, or not as fully, discussed, such as the tension between classified and unclassified research (Resnik 2007), or the impact of neuroscience on our understanding of free will (Morris 2007). Perhaps not surprisingly, some commentators questioned our approach or conceptual framework. Lunstroth and Goldman (2007) stated that we have inappropriately merged as distinct elements—intelligence, law enforcement and military—into the broader frame “national security.” In fact, through both strategy and structure, these three functions are becoming increasingly merged. Consider, for example, the Terrorist Surveillance Program, which is conducted by the National Security Agency (NSA). The NSA is part of the intelligence community but owned by the Department of Defense. Its terrorism-related products are fed to the National Counterterrorism Center (NCTC), which analyzes information that is selectively made available to law enforcement through the Department of Homeland Security and the FBI. There will soon be created an Information-Sharing Environment (ISE) where, subject to certain controls, local law enforcement will have access to classified information. Thus, there is already evidence for convergence of intelligence, law enforcement and military information streams.

We chose the national security frame, as opposed to the homeland security frame, in an attempt to isolate and iden-

tify potential applications that might be permissible under existing law or tolerated by citizens under narrow circumstances. We do not know to what extent the American people will support broad applications of neuroscience in the context of homeland security, or how much of the public will condone such applications in overseas military operations, even subject to scrutiny based on internationally accepted and recognized legal, moral and ethical standards. We agree with the commentators that a public debate is needed.

We decided the time was right for writing our target article because neuro-technologies are *already* being considered for applications in national security (Moreno 2006). We therefore find calls for cessation of such research and development (R&D) efforts unrealistic. As Alpert (2007) commented, public outcry over some government programs may simply drive them underground. We share her concern, which is precisely why our article advocates a public debate (kicked off right here on the pages of *AJOB-Neuroscience*) that will help define the ethically appropriate space and boundaries for such research.

Alpert (2007) raised a concern that we ignored a role for the public in this partnership. We disagree. We clearly highlighted the fact that the public is skeptical about government actions that intrude on privacy and free choice, and that public concerns must be “thoroughly and thoughtfully addressed.” On the other hand, we think it is unrealistic to demand that every aspect of policy-making in national security be public. As pointed out by Resnik (2007), there is a need for classifying certain kinds of research and for restricting access to such information to those with appropriate security clearances. Resnik’s commentary added an important

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element to the discussion, however, by highlighting the fact that much of the science and technology involved in neuroscience is 'dual-use.' His discussion of open versus closed research and the National Science Advisory Board for Biosecurity are excellent illustrations of how the biological sciences and ethics have been integrated into decision-making processes relevant to the application of the biological sciences to national security. By the nature of their expertise, neuroscientists and ethicists bear a particular responsibility to be involved in a similar process. We agree with Alpert that other individuals reflecting broader concerns of the public certainly could (and should) be included.

This brings us to a theme that ran through several commentaries (Justo and Erazun 2007; Lunstroth and Goldman 2007; Rosenberg and Gehrie 2007): the role of scientists and doctors in national security, whether it is in policy-making, participating in R&D activities, or in their application. We are mindful of the possibility that scientists involved in national security in any of these functions run the risk of losing scientific or ethical perspective or independence. However, we do not think that the solution to this possibility is less engagement, but rather, engagement with specific ethical guidelines provided by their respective professional organizations and in full view of the public.

Recent deliberations by the Ethics Office of the American Psychological Association are germane to this discussion. When challenged that psychologists should not let themselves be placed in situations where their behavior is "governed by inconsistent national and international human rights standards and laws," the Office asked whether there are

specific work environments in which the individual judgment of a professional is necessarily so impaired that he or she cannot reasonably exercise responsible moral judgment. . . . Do the conditions of . . . interrogations involving psychologists . . . constitute an environment where ethical decision-making is impossible so that no individual psychologist, regardless of how ethically-minded and informed, could practice in an ethical manner, either because of pressures on the psychologist or because of other conditions of the setting?" The APA draws the interesting comparison of treatment at Guantanamo Bay, a correctional facility in the U.S. such as the Los Angeles county jail, and a setting where the death penalty is administered (inconsistent with international human rights norms and standards). The question is "whether those actual conditions are such that they prevent the individual exercise of ethical judgment on the part of the well trained, informed, and ethically-minded (Available online at <http://www.apa.org/ethics/pdfs/ethicscommittee122206lettertoeilal1man.pdf>. Accessed on 23 March 2007).

A possible solution, to train "technicians instead of physicians to administer and interpret" (Rosenberg and Gehrie 2007), appears to us to only exacerbate the ethical problem and add ineptitude and misdiagnosis to the likely outcome. This kind of "passing the buck" is precisely what we are arguing against (and to be fair, Rosenberg and Gehrie do not advocate this, either). It is our view that if the scientist and science practitioner refuses to participate in "national

security" activities, those without scientific credentials will use these "dual-use technologies" as they see fit. Harm will happen. If we do nothing, have we done no harm?

With respect to scientists' involvement in national security-related R&D, the same tenets of human subject protection are in place for research related to national security as are for any other publicly-funded human subject research in the U.S. We agree with the commentators that experiments on waterboarding are unacceptable and unethical under any circumstances; we reject such "research" and in no way endorse such experimentation.

Given their concern for human rights, we are taken aback by Justo and Erazun's statement that the use of fMRI in lie detection "could considered be even more objectionable than interrogations using torture, because the tortured person has (theoretically, at least) the chance to remain silent or declare a falsehood in order to stop the torture" (Justo and Erazun 2007, 17). We wonder how many actual victims of torture would share this academic sentiment. Furthermore, an examinee in an fMRI lie detection interview could exert his or her free will to attempt to fool the scanner by using countermeasures, to which current lie detection technologies are susceptible. In any event, the real question is whether using lie detection methods in limited situations necessarily violates the subject's rights; a mere assertion that it does is not very useful.

We think that Rosenberg and Gehrie (2007) may overestimate neurotechnological capabilities, when they state that "[w]e also maintain that using neurological brain mapping technologies to detect intention or past experiences incorrectly assumes that subjective assessments correspond to discrete anatomical or functional findings" (22). Popular media accounts notwithstanding, the existing state of the science is not capable of reliably predicting an individual's intent, or specific past experiences. A recent study by Haynes and colleagues (2007) received a lot of media attention because it presented evidence that intent has a neural correlate. However, the data are preliminary, the sample small, and the task basic: based on eight participants, the study showed with 70% accuracy (50% being at chance levels) that some brain regions predicted the intent to either add or subtract numbers. It remains to be seen whether the capability to read an individual's intent in high-stakes, real-life circumstances can ever be achieved. It is unclear whether the authors refer "subjective assessments" to the examinee being scanned, or the investigator analyzing the data. If they refer to the examinee, there are task paradigms that do not require a subjective assessment by the subject, such as any paradigm designed to engage implicit cognitive processes. If they refer to the investigator analyzing the data, good scientific practice would dictate that the procedures of analysis are objective, valid and reliable, and can be replicated by other investigators.

Underlying these commentators' concerns is the issue of whether information gathered with these techniques is used in a manner that abridges civil liberties. This is certainly an important concern, but not one that arises uniquely from

neuroscience. The issue is one of policy: If someone is identified as threatening, then what actions are taken? If no further evidence can be found other than an anomalous fMRI (should we reach that point), is this sufficient for arrest or other legal actions? Law enforcement agencies already use behavioral checklists to determine whether people moving through airports and across borders exhibit "signs of deception or threat." When such a person is identified, they are pulled aside and questioned further. How is a "remote sensing device" any better or worse than this, provided it serves to identify individuals for further questioning? Indeed, one can argue that these neurotechnologies may be more reliable and more valid in situations where their underlying algorithms and engineering have been developed in controlled, laboratory conditions and field tested appropriately.

As we have stressed throughout the target article, at this time, neurotechnologies are not ready for use in national security, and much research is needed to determine the true accuracy and reliability of several possible methods. However, that does not mean that rigorous, accurate, and meaningful research should not take place because the resulting technologies—like any technologies—may have bad uses as well as good ones. Instead, we must work to max-

imize the benefits of such technologies and minimize their harms. ■

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