**Human enhancement technologies in the military: impacts on attribution of responsibility**

The drive to use human enhancement technologies in the military has to some extent stemmed from the desire to create superior soldiers. Cognitive enhancement technologies are of particular interest due to their potential to overcome the human brain’s limitations. Brain-Computer Interfaces (BCIs) are currently being tested for their use for this very purpose. For example: BCIs that could be used to control swarms of drones as opposed to a single pilot controlling one drone. The use of cognitive enhancements in a military environment raises ethical concerns regarding attribution of responsibility for conduct during warfare. The context in which BCIs are used in the military are somewhat different to that of a scientific research or medical environment. Factors outside the individual’s control such as tactical requirements, mission success and the military doctrine’s duty to obey superiors all contribute in the decision to accept the use of BCI by an individual. Given the limited decision making capacity for individuals in this context, one could lean towards attribution of responsibility to not fall solely on the individual. However, on the other hand, using BCIs have the potential to greatly increase an individual’s capacity to carry out tasks making him/her more competent and effective in their assigned tasks. Based on this perspective, one could claim that individuals ought to be held accountable for his/her actions This paper will examine how the use of cognitive enhancements complicates attribution of responsibility in this very manner.

For the purpose of this paper, responsibility is understood as an outcome responsibility (based on Nicola A Vincent’s Structured Taxonomy of Responsibility Concepts). Responsibility is attributed to the outcome of an individual’s decision or actions. An individual is either praised or blamed for her/his decisions or actions. Based on this understanding, only agents are responsible for outcomes. Attribution of responsibility is important in wartime. According to Michael Walzer in *Just and Unjust Wars*, responsibility is critical because ‘there can be no justice in war if there are not, ultimately responsible men and women’. If the principles of *jus in bello* are to hold true, it would require attribution of responsibility to fall beyond the collective (i.e the government/state). If we are to learn from our mistakes during the conduct of warfare, responsibility ought to be taken by an individual for her/his specific actions. However, the use of BCIs require a re-visit to this concept.

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Sahar is a Doctoral candidate at the National Security College. Her research looks at human enhancement applications in the military with a focus on cognitive enhancements and the impact on moral responsibility. Sahar has a background in biomedical engineering with professional experience in biomedical research and in industry. Prior to joining the National Security College she worked at the Neuroscience Research Australia conducting research on neurodegenerative disorders. Sahar has also worked in the Australia Public Service at the Office of the Gene Technology Regulator and is currently employed at the Department of Defence working in areas that focus on emerging technologies. Sahar has completed four masters degrees in; 1) Biomedical Engineering, 2) International Security Studies, 3) Policing, Intelligence and Counter Terrorism and 4) National Security Policy.