

This response was submitted to the consultation held by the Nuffield Council on Bioethics on *Novel neurotechnologies: intervening in the brain* between 1 March 2012 and 23 April 2012. The views expressed are solely those of the respondent(s) and not those of the Council.

## **Mission and Public Affairs council, Church of England**

### **NUFFIELD COUNCIL ON BIOETHICS: NOVEL NEUROTECHNOLOGIES CONSULTATION**

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*The Mission and public Affairs Council presents a Christian ethos, drawing on the witness of the Christian Scriptures and reflecting on Christian tradition and contemporary thought. Belief in God as Creator and Redeemer, in human beings' intrinsic value as creatures made in the Image of God and in the imperatives of love and justice, underpins the Council's approach. The Council believes that the ethical and social principles that are developed from this foundation may be embraced by people of other faiths or of none.*

1. The consultation document invites respondents to address those questions that are most pertinent to them and to which they can bring particular insight or expertise. Consequently, this response will focus on questions 4 and 5 of the consultation document:

*Question 4: What are the most important ethical challenges raised by novel neurotechnologies that intervene in the brain?*

*Question 5: In what ways, if at all, should the development and use of these technologies be promoted, restricted and/or regulated? Please explain your reasons.*

## **2. QUESTION 4: What are the most important ethical challenges raised by novel neurotechnologies that intervene in the brain?**

2.1 Neurotechnologies form part of a larger set of interventions that are often discussed under the umbrella term, 'human enhancement'. As such, many concerns and challenges that are raised by neurotechnologies are common to the debate on human enhancement. It is necessary, therefore to look at the ethical backcloth to this wider debate in order to place a discussion on novel neurotechnologies in its proper context. Within this wider debate, neurotechnologies are particularly important as they introduce the possibility of enhancement of the human brain, a part of the human body that affects our core understanding of who and what humans are, both as individuals and as a species.

2.2 It is not possible to divorce the actual or potential *practice* of neurotechnologies from the wider *process* in which they are set. This process includes (i) the motivation for developing novel neurotechnologies, (ii) the means by which they are developed, (iii) the safety and efficacy of particular interventions and (iv) the potential societal, as well as individual, effects of such neurotechnologies. The process within which any application of novel neurotechnologies is set gives rise to a number of concerns:

2.2.1 *Motivation* for developing novel neurotechnologies may include the desire to address illness or disability, to advance scientific knowledge and technical expertise, to pursue commercial interest or to provide enhanced human experience and performance for individuals' particular purposes which may, sometimes, be thought of as being trivial. In principle, it may be possible to separate these motives and to be supportive of therapeutic interventions; in practice, motives are likely to be mixed and consequently, much more difficult to assess. Of particular concern is the possibility that unrealistic expectations may be embraced or promoted, with individuals believing that enhancement will inevitably lead to better and happier lives. Relational, psychological, moral and spiritual wellbeing are complex matters; neurotechnology cannot provide a short-cut to attaining any of them.

2.2.2 The *means* by which novel neurotechnologies are researched and developed may include ethically challenging procedures, such as the use of stem-cells or genetic

manipulation involving embryonic or foetal material or the use of trans-species material. It is important that there is transparency around these issues so that researchers, clinicians and potential recipients may make informed decisions with regard to their participation in novel neurotechnologies.

2.2.3 *Safety and efficacy* are particularly relevant in neurotechnologies as they have the potential to affect such important issues as personal identity, individual character and mental health as well as having the potential to challenge our understanding of what it means to be human. Efficacy may be difficult to assure, given that many variables are involved in the application of novel technologies, while safety levels may be difficult to determine, given that problems can take many years to become apparent.

2.2.4 A wide range of *effects*, both intended and unintended, will emerge from novel neurotechnologies. Therapeutic advances in the care of individuals are, in principle to be welcomed, but questions of equity arise with regard to the availability, cost and general accessibility of such interventions.

2.2.5 The use of neurotechnologies for human enhancement raises equity and justice issues such as the influences of privilege and discrimination, the perils of societal engineering and the encouragement of elitism.

2.3 Addressing the above concerns requires us to recognise and to attempt to resolve a number of ethical ‘tensions’, outlined below as a series of ethical spectra. The ‘position’ that we adopt on each spectrum will, to a large extent, inform the decisions that are made with regard to the utilisation of various neurotechnologies.

2.3.1 *Communal responsibility-Individual Freedom*: individual freedom to pursue, to apply or to receive the benefits of novel neurotechnologies must be balanced by the effects of such actions on others. The integrity and cohesion of society is undergirded by equitable access to treatment as well as by limits being placed on the advantages that individuals might gain through neurological enhancement, made possible because they enjoy financial or social privilege. .

2.3.2 *Natural order-human intervention*: while human beings are part of the natural order, we have developed unprecedented abilities to manipulate the rest of nature as well as to alter, adjust or augment our own bodies and minds. To what extent ought we to view nature, as it has evolved and developed over time, to represent a template that ought to be adjusted or augmented only with caution? Alternatively, ought we to view our destiny as something that is entirely in our own hands, subject only to those limitations that we may choose to impose upon ourselves? An inherent caution is often evident as a ‘default position’ with regard to ‘changing’ nature. This may properly reflect a desire to minimise the introduction of risks into a finely-tuned bio-system, but human interventions in nature have resulted in great good as well as notable harm.

2.3.3 *Fixed –fluid understanding of human nature*: undergirding this spectrum are two further issues: whether human nature can be *defined* or, more appropriately, *described* and whether human development is best understood as comprising a series of distinct and fixed points or as a gradualist continuum. Traditionally, many philosophers, theologians and ethicists sought to define human nature, viewing the human species as being biologically distinct from other species, with various distinctions being clearly delineated. Moral significance was often attached to particular developmental points, both in the emergence of the human species and in the emergence of individual human persons. In contemporary thought, a gradualist and holistic approach is often preferred, with human life being seen as part of a greater continuum of life on Earth and individual human lives as representing a continuum from one generation to another. Those who tend towards the ‘fixed’ end of the spectrum tend also towards limiting novel neurotechnologies to therapeutic purposes while those who take a ‘fluid’ approach are more likely to be open to utilising neurotechnologies for enhancement purposes.

2.3.4 *Ideology-reasoned pragmatism*: it is impossible to approach ethical issues in an ideologically free manner (pragmatism may, itself, be presented as an ideology), but for some individuals and groups their distinctive philosophical, theological or political values take primacy. For others, pragmatism, undergirded by a conscious, though not necessarily successful, desire to employ ‘pure reason’ is their main consideration. It is important that ideologies and their influences are acknowledged, but that ensuing

opinions are not thereby dismissed. Principles and opinions may be valid and gain widespread acceptance, regardless of the ideological background from which they emerge.

2.3.5 *pessimism-optimism*: an often overlooked factor in ethical and policy decision-making is the inherent attitude of individuals and groups towards the human race and to human history and society. For a variety of reasons, including ideological adherence, personal and community background and culture and psychological disposition, some people take a generally pessimistic view with regard to human progress and the essential 'goodness' of human nature, while others are inherently optimistic. While there are obvious dangers associated with being either entirely pessimistic or optimistic, it is often difficult to determine, in any given context, precisely where sound judgement lies.

2.4 In assessing the ethical implications of novel neurotechnologies, it is necessary to find defensible areas within each of the above spectra from which to make informed decisions with regard to particular interventions. While each neurotechnology and the possible uses to which it may be put ought to be addressed in its own right, it is also possible to outline out a general approach.

2.6 Because of the intrinsic importance of the human brain and its relationship with the human mind (however such a relationship may be understood), there is a valid reason to err on the side of caution when contemplating novel neurotechnologies. Such caution, however, ought not to be permitted to prohibit appropriate medical and scientific progress. The appropriateness of such progress is marked by determining the degree to which a given neurotechnology might fulfil the following criteria:

- (i) it addresses medical need, without causing or accepting an inequitable utilisation of resources;
- (ii) it enhances performance without creating an unjust disparity between individuals or between social, ethnic or economic groups;
- (iii) it encourages human creativity and ingenuity without undermining essential or desirable boundaries existing within nature;
- (iv) it restores or improves human performance without leading to 'trans-humanism'.

(v) it permits individuals freedom to choose to participate without coercing others with ideological objections, to do so;

(vi) it embraces progress without ignoring the risks associated with negative aspects of human nature, such as commercialism, commodification and manipulation.

How these criteria might be reflected in practice is explored in the answer to the next question.

### **3. Question 5: In what ways, if at all, should the development and use of these technologies be promoted, restricted and/or regulated?**

3.1 From the discussion above, it follows that there is a place both for the promotion and the restriction of novel neurotechnologies. Regulation will be necessary to achieve both of these goals.

3.2 In principle, those neurotechnologies that address illness or disability ought to be promoted and funding strategies ought to be put in place to further their development.

3.3 Because of the potential risks to mental and physical health associated with the introduction of novel neurotechnologies, it is essential that robust regulation is introduced to maximise their safe application.

3.4 In order for researchers, clinicians and potential recipients to make informed choices with regard to novel neurotechnologies, it is essential that regulations ensure that there is transparency with regard to research and to developmental methods employed in making a particular neurotechnology available. This is particularly pertinent for neurotechnologies that utilise embryonic or foetal material.

3.5 Once a particular neurotechnology is deemed to be therapeutically safe and effective (within acceptable limits), appropriate interventions ought to be made available within the NHS. A situation ought not to be allowed to develop where access to certain interventions for conditions, whose treatment lies within the remit of the NHS, is restricted only to those who can afford to pay for it.

3.6 Non-therapeutic (enhancement) use of neurotechnologies ought to be restricted so that individuals are prohibited from gaining an unfair advantage in education, employment, sport or in other 'competitive' activities. In effect, this would mean that neurotechnologies ought to be available only under licence, with effective penalties being put in place both for those using and those supplying unlicensed neurotechnologies. A particular concern is that this will lead to an 'underground market', particularly in drug-based neurotechnologies, with attendant problems of self-medication and enforcement of regulations. Successfully addressing this concern will require focused input from a number of agencies as well as an agreed and workable framework of regulation. Nonetheless, it is difficult to see how these problems can be avoided unless the development of all drug-based neurotechnologies was banned; an unacceptable and unrealistic approach.

3.7 There is likely to be considerable difficulty in determining where therapeutic use of some neurotechnologies ends and enhancement begins. It will be necessary to establish a licensing body that will be competent to rule on contested cases.

3.8 The personal recreational or social use of neurotechnologies for activities such as gaming, listening to music and watching DVDs ought to be carefully regulated, but not prohibited, with requirements that novel neurotechnologies are safe, limited in their application and without significant risks of having detrimental social effects.

3.9 Personal use of neurotechnologies to enhance non-competitive performance in some 'functional' activities such as driving or flying ought to be closely regulated to ensure that they will enhance and not compromise safety. For example, there may be a place for introducing non-invasive neurotechnology to enhance safety for trained and qualified professionals such as bus or taxi drivers or for airline pilots, but it does not automatically follow that the use of such neurotechnology would be safely utilised by others.

3.10 Military use of novel neurotechnologies is inevitable with resultant improvements in defensive safety (for example, bomb disposal) and in the development of offensive capabilities (for example, remote-bombing). The substantive task for society is to work towards limiting occasions of conflict and, in

that way, to minimise the negative impact of the introduction of novel neurotechnologies in warfare.

3.11 Significant further debate is required to establish acceptable boundaries to stop the encroachment of neurotechnologies into the sphere of 'trans-humanism' or into areas where the integrity of other aspects of nature may be compromised, for example, the extension of neurotechnologies into other species.

3.12 There is no doubt that as far as neurotechnologies are concerned, 'the genie has been let out of the bottle' and further developments in the field will follow. It is essential, therefore, that potentially negative effects are minimised and that potentially positive effects are channelled constructively, as outlined above.