

# Cognitive Enhancement and Transformative Experience: The Challenge of Wrapping One's Mind Around Enhanced Cognition via Neurostimulation

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**ISSUES:** (1) Is it reasonable to characterize some forms of cognitive enhancement via neurostimulation as a transformative experience? (2) If so, how does this affect how we interpret the perspectives of individuals as they imagine different forms of cognitive enhancement, including the testimonies of people intimately acquainted with changes in cognitive disorders, like dementia? (3) How should researchers approach qualitative studies on cognitive enhancement if the experience is understood as a transformative experience?

**THESES:** (1) It is sometimes reasonable to characterize cognitive enhancement as a transformative experience, (2) the testimonies of people intimately acquainted with dementia may still be relevant in evaluating the ethics of cognitive enhancement even though cognitive enhancement may be a transformative experience, and (3) qualitative studies may still be useful in the ethical analysis of cognitive enhancement, but special attention may need to be given to how these are conducted and what kind of insights can be drawn from them

## THE COGNITIVE ENHANCEMENT DEBATE

**Cognitive enhancement** (CE) is the process of improving cognitive performances of individuals beyond the species-typical level or statistically normal range of functioning through biotechnological interventions.

The debate on the ethics of CE has been oriented around three themes: (1) the goal of enhancement; (2) the means of enhancement; and the (3) consequences of enhancement.

Since this debate has been mainly held at the level of abstraction and speculation, there have been calls for our ethical analysis of CE to be more empirically informed, especially from the social sciences and psychological sciences.

## QUALITATIVE STUDY ON VIEWS ON COGNITIVE ENHANCEMENT

We are conducting a qualitative study interviewing **people intimately acquainted with dementia** to inform the ethics of cognitive enhancement discourse. The interviewees are intimately acquainted with dementia in two ways: (1) they are people perceived to be at risk of developing dementia as determined by their family history or genetic testing and (2) they are or have been in intimate family relationships with PLWD. Our study works from the premise that people living in close proximity to dementia may have the kind of experiences that afford them access to certain kinds of knowledge and insight that could valuably inform normative debates on cognitive enhancement.

**Method:** We are inquiring about their perspectives on various forms of cognitive enhancement by presenting them with a range of hypothetical neural devices that might one day be used to enhance cognitive function in varied ways and gauging their views through a semi-structured discussion.

The hypothetical cases are posed to interviewees through the presentation of short videos that demonstrate the proposed cognitive ability and are accompanied by a narrator describing the enhancement and its potential real-world benefits. One example is a "memory device" to amplify a user's short-term memory:

*Imagine that there is a device that we'll call a "memory device." Electrodes surgically implanted in the brain would provide the brain with small amounts of electricity and this would improve your short-term memory. The device would make it easier for you to remember things that were not possible before. You might be able to remember long grocery lists without writing anything down or remember many of your appointments without using a calendar. As you imagine this hypothetical device, consider that it would make your short-term memory better than it ever has been before and maybe even better than anyone else's you know.*

After the video is shown, we conduct semi-structured interviews asking participants to reflect on the devices presented and have an in-depth discussion about their views on cognitive enhancement, including whether they expect it would increase their subjective well-being.



## HARD TO IMAGINE PROBLEM

**Observation:** Interviewees struggle at times with the thought experiments, expressing difficulties of imagining what it would be like to be cognitively enhanced in the ways that the hypothetical cases pose.

- P1: "Do you get your short-term memory back for the last 24 hours and then it gets replaced by the next day? Or do you continue to remember it? Does it allow you to remember that you took your medication this morning, but not yesterday morning?"
- P2: "So if you're bringing me back up to a level of normal, the way I used to be when I was 20, whoa, cool. Now, if you're going to zap me up a little higher than that, interesting, [but] I have no idea what that would be like."
- P3: "It's totally hard to imagine."
- P4: "It's hard for me to picture."

**Hard to imagine problem:** the problem of imagining what it is like to be cognitively enhanced.

## COGNITIVE ENHANCEMENT AS TRANSFORMATIVE EXPERIENCE

The "hard to imagine" problem invites the question of whether we should think of CE as a transformative experience.

**Transformative experience** - the kinds of life-changing experiences that are (1) dramatically novel to the agent, (2) inaccessible to understand without going through them, and (3) can radically alter the perceptions and preferences of those who do undergo them to the extent that they might consider themselves as becoming a "different person."

The reason why it may be difficult for interviewees to participate meaningfully in the study's imaginative exercise is that a cognitively enhanced state of being is exceptionally novel and interviewees may lack any prior experiences that would allow them to grasp what it would be like to engage and experience the world with extraordinarily amplified cognitive capacities.

If CE is a transformative experience, then it puts epistemic limits on what philosophers or other scholars can claim about cognitive enhancement in terms of its impact on well-being.

## THE VALUE OF TESTIMONY IN THE CE DEBATE

If CE is a transformative experience, does that mean testimonies cannot valuably inform the the ethics of CE discourse, especially people in close proximity to dementia?

People living in close proximity to dementia may offer important insights that are relevant to the CE debate and worth attending to. Although they may not have direct personal experience of undergoing cognitive enhancement, they do have personal experiences observing, interacting with, and caring about substantive cognitive changes in family members that many people do not, and this may serve as an epistemic asset and confer normative insight to the cognitive enhancement discourse.

People living in close proximity to dementia add **epistemic diversity** to the overall discourse. They may perceive CE in ways that are different from how people lacking such experiences might typically perceive it, indicating that the former are attentive to certain features of cognition that the latter would not necessarily be receptive to due to their different experiences.

## FUTURE RESEARCH ON CE

Acknowledging CE as a transformative experience may help inform best practices for empirical ethics research on cognitive enhancement. The implication of our arguments is not foreclosing the possibility of doing qualitative studies to ethically assess CE but to rethink approaches in this area. Testimony still has an important place, but we must be more creative in the kinds of questions we ask.

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