

CHEATING EDUCATION: THE COHERENCE AND DESIRABILITY OF TECHNOLOGICAL HUMAN ENHANCEMENT IN EDUCATIONAL CONTEXTS¹

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What kinds of technological innovations might enable us to enhance educational outcomes, and what price might they come at? There are at least four reasons for raising this question. Firstly, given the rate of technological progress, we should plan ahead in order to forestall the potential abuses of even the most speculative technologies, in case they materialize without our proper preparation. Secondly, such discussion might help motivate and guide further research and development, where specific desirable outcomes are identified. Thirdly, insofar as such technology is already with us, it is wise to think about its potential applications so as not to miss opportunities or misuse them. Fourthly, whilst some forms of enhancement we canvas might turn out to be physically impossible, their metaphysical possibility would still make reflecting on their desirability fruitful, as this would help us to better understand what it is that we value about education.

We have framed our interdisciplinary symposium around the possibility of ‘cheating’ education. ‘Cheating’ could refer to the possibility that the uneven availability of certain enhancements might unfairly advantage those with access to them. There is the sense in which we might ‘cheat’ education in that our efforts might tend towards finally overcoming it. This is related to the hope of some transhumanists that technological enhancement might enable us to ‘cheat’ death, in that (in the same way as we have achieved with information) the mind itself might one day be able to be loaded from platform to platform, no longer relying on a specific organic substrate. ‘Cheating’ could alternatively express the concern that at some point, technological enhancements might end up short-changing education, or – what might amount to the same thing – short-changing us. Drawing on psychology, educational philosophy and epistemology, the papers in this collection take these possibilities as their point of departure, and ask whether educational goods are sacrificed in bypassing educational processes.

¹ We would like to thank Chris Higgins for the opportunity to develop this symposium from the proposal stage, the contributors for the rigorous and imaginative ways in which they explored the theme of the symposium, and the team of anonymous reviewers for their constructive comments.

It is common in discussions of educational enhancement for education to be regarded highly instrumentally, and furthermore as a relatively inefficient tool that is likely to become outmoded, with no loss. One such view, that has been influential in the field of 'neuroenhancement', is offered by Nick Bostrom and Anders Sandberg.² For Bostrom and Sandberg, education is one conventional vehicle among others leading to the enhancement of cognitive goods (i.e. "general mental faculties such as concentration, memory, and critical thinking" (312)). In light of this and in order to emphasize the 'enormous leverage' that more 'unconventional' vehicles might have for enhancing cognition, Bostrom and Sandberg ask us to 'consider the cost-benefit ratio of a cheap pill that safely enhances cognition compared to years of extra education' (313). More unconventional vehicles include 'ones involving deliberately created nootropic drugs, gene therapy, or neural implants', which 'are nearly all to be regarded as experimental at the present time' (312).³

Bostrom and Sandberg do not consider whether education might constitute an intrinsic good. They hope that research will discover more efficient means to enhance educational processes, or bypass them in the production of cognitive goods. It is cognitive enhancement, not education (which they leave minimally defined), that might be valued both intrinsically as well as instrumentally:

'Having a good memory or a creative mind is normally valuable in its own right, whether or not other people also possess similar excellences. Furthermore, many cognitive capacities also have instrumental value, both for individuals and for society' (323).

One might complain that there are other educational outcomes than cognitive enhancement that are overlooked here, but an account so embellished would be no less instrumental for their addition. Indeed, even sophisticated educational theorists are often wont to discuss education in largely instrumental terms, as vehicles for socially desirable personal states (see Brighouse et al):

'We have coined the term "educational goods" to refer to the knowledge, skills, attitudes, and dispositions that children develop both for their benefit and for the benefit of others. These goods are varied, including cognitive skills, the ability to work with others, and appreciation of beauty, among many others'⁴

² Nick Bostrom and Anders Sandberg (2009) 'Cognitive Enhancement: Methods, Ethics, Regulatory Challenges', *Science and Engineering Ethics* 15:311–341. 'CE' hereon.

³ Bostrom and Sandberg acknowledge that "the demarcation between these two categories is problematic and may increasingly blur" (CE, p. 330).

⁴ Harry Brighouse, Helen F. Ladd, Susanna Loeb and Adam Swift, (2017) *Educational Goods: Values, Evidence, and Decision Making*. Chicago: University of Chicago Press, p. 4.

This sense that technology is set fair to outmode education can be tempered by the recognition that at least sometimes education does not have predefined ends. Educational processes might be good in themselves – for instance when they constitute an irreplaceable, valuable form of social relatedness – and at least some outcomes might be constitutionally attached to their educational means of production (cf Aldridge contra Tillson, in this edition).

Paul Standish has urged us to consider whether education must have aims. He points out that when ‘education is undertaken on a large, systematic scale... scepticism about the giving of aims may seem like a kind of political irresponsibility. Surely there must be aims. And should these not be explicit?’⁵ Yet he suggests that in education ‘the presumption in favour of rational planning has been influenced by a sort of scientism or technicism’.⁶ There are ‘examples of valued practice where the aims are inexplicit or where there are no aims – or perhaps where talk of aims seems inappropriate.’⁷ To attempt to fully or clearly explicate the desired ends of a particular educational activity or relationship might lead to a stifling or distortion of education, where ‘teaching and learning should lead indefinitely into other things’, and to bypass the activity or relationship in favour of the planned end (we don’t think we are stretching the implications of Standish’s argument too far here) would reduce ‘the good’ towards which education obliquely and tentatively strives, to an object or ‘graven image.’⁸

Consider the plausible contention that watching one of Shakespeare’s plays is an educational good, but one which requires no particular outcome. By way of comparison, in *Lectures and Conversations*, Wittgenstein gives critical consideration to a teleological understanding of art: ‘There is a tendency to talk about the “effect of a work of art” – feelings, images etc.’⁹ ‘Does that mean that if you gave a person the effects and removed the picture it would be all right? Surely (the) first thing is, you see the picture ... Would a syringe that produces these effects on you do just as well as the picture?’¹⁰ Similarly, one could not, in the name of education, skip the process of watching *Romeo and Juliet*. To elaborate on the particular subclass of valuable forms of social relatedness, consider whether teacher-student relationships may plausibly be considered non-instrumentally valuable in a similar way to parent-child relationships. Perhaps the former should no more be valued as an efficient means to intelligence, say, than the latter should be valued merely as an efficient means to independence. Similarly friendship is not valued only for the goods it

⁵ Paul Standish (1999) ‘Education without aims’ in Roger Marples (ed.), *The Aims of Education*. Routledge. pp. 35-49 p. 40

⁶ Ibid.

⁷ Ibid p. 41

⁸ P. 46

⁹ Ludwig Wittgenstein (1963), *Lectures and Conversations on Aesthetics, Psychology and Religious Belief*. Oxford: Blackwell, p. 29

¹⁰ Ibid, p. 29, fn 3

provides, such as mutual support, but as an inherently valuable form of social relatedness. Collaborative discovery and creativity as equal partners seem to be forms of social relatedness in which the outcomes figure large, but whose goodness cannot be reduced to outcomes alone. There may be an inherent value in guiding and being guided rather than merely having or stumbling across. Just as Brighouse and Swift explore familial relationship goods – goods distinctively enjoyed by parents, as parents, and by their children, as their children – so too perhaps can we think of distinctive pedagogical relationship goods.¹¹ Indeed, educational researchers have emphasized the intrinsic value of the emotional, intuitive, imaginative, engaged, attentive, and responsible aspects of the pedagogical relationship.¹² Not only may it be good for teachers, but also for children. Being cared for, attended to, and coming to maturity through a history of having one's attention directed and redirected in relation with others could be good for one.

The debate between Tillson and Aldridge opens the collection and considers, in terms of perhaps the most speculative future technology, whether educational processes might be altogether bypassed by the 'insertion' of knowledge by means, perhaps, of cybernetic implant, genetic manipulation or nanotechnological transformation. Tillson argues that if a) we seem to be able to imagine something, b) our seeming to be able to imagine it survives extended critical reflection, and c) we can cash out what it would consist in with plausible detail, then we have defeasible reason for thinking that that thing is in fact metaphysically possible. He proceeds to make good on each of these requirements, responding to five objections. Knowledge insertion, he contends, is possible and, at least in some cases, desirable. In response, Aldridge contends that Tillson's argument, along with other hopes that education might be augmented by brain-computer interfaces that give access to vast storehouses of knowledge, depend upon a reduction of knowledge to information. Education, Aldridge contends, is sold short as mere information-insertion at the point where knowing is reduced to holding an explicit mental representation.

¹¹ Brighouse, H. and Swift, A. (2014) *Family Values: The Ethics of Parent-Child Relationships*. Princeton: Princeton University Press.

¹² Greene, M. (1995). *Releasing the imagination. Essays on education, the arts, and social change*. San Francisco: Jossey-Bass.

Kelchtermans, G. (2005). Professional commitment beyond contract. Teachers' self- understanding, vulnerability and reflection. Keynote address presented at the bi-annual meeting of the International Study Association on Teachers and Teaching (SATT), Sydney (Australia), 2-6.

Korthagen, F.A.J. (2001). *Linking theory and practice. The pedagogy of realistic teacher education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Van Manen, M. (1991) *The tact of teaching: The meaning of pedagogical thoughtfulness*. London, ON: Althouse Press.

Van Manen, M. (1995) On the epistemology of reflective practice. *Teachers and Teaching: Theory and Practice*, 1 (1), 33-50.

Van Manen, M. (2002) *The tone of teaching*. London, ON: Althouse Press.

Zembylas, M. (2005). Beyond teacher cognition and teacher beliefs: the value of the ethnography of emotions in teaching. *International Journal of Qualitative Studies in Education*, 18 (4), 465-487.

Inserting a particular belief or mental representation could not, for Aldridge, produce knowledge, since we cannot separate the state of being a knower from the history whereby that knowing was achieved.

As Bostrom and Sandberg readily acknowledge, when we evaluate educational and unconventional means of cognitive enhancement in instrumental terms, we may often find that educational means currently win out due to considerations of reliability, economy, or safety. Gallagher argues this latter point, recommending more modestly unconventional means of enhancement for the time being. Gallagher criticizes the standard representationalist account of cognition, which has had a profound effect on educational thinking, for understanding learning ‘as primarily an intervention on the brain’ and for holding that ‘exercising the brain via designed practices – reading, writing, math drills – is the core of learning.’¹³ He presents instead an ‘enactivist’ view of education, whereby cognition can be enhanced by altering any part of the body-brain-environment unit. Gallagher draws attention to possible risks involved in the deep stimulation or direct augmentation of the brain and contends that enhancements directed at body and environment are at least as effective, presenting as an example the development of a mixed-reality simulation (VR) for science education that emphasizes whole-body engagement and environmental design.

The two papers by Puddifoot and O’Donnell, and Carter each consider the extent to which we ‘cognitive offloading’ is educationally desirable. That this is already an issue in relation to ‘cheating’ education is indicated in the fact that students are often forbidden from bringing their notes or their handheld devices into examinations. Puddifoot and O’Donnell consider the adoption of the affordances of future technology for augmenting or overcoming the limitations of human memory. They argue that certain conventional means of education best realize an important educational goal in a way that unconventional means will have a hard time superseding, namely the capacity of student learners to form abstractions and insights from newly learned information. Carter, considering a wider range of possibilities for the outsourcing of cognitive tasks to ‘extra-organismic elements’, considers a possible threat to intellectual flourishing. Cognitive offloading, he argues, threatens intellectual autonomy by restricting our freedom to achieve intellectual goods, rather than simply having intellectual goods materialize irrespective of our abilities. Achievement, he contends, is among the valuable aspects of human life. In coming to depend on machines, he warns, we may cut ourselves off from opportunities to achieve. He concludes that, ‘whatever cognitive gains we can make by offloading must be weighed against a restriction on autonomy’.¹⁴

¹³ Gallagher, this issue – citation TBC in copy editing

¹⁴ Carter, this issue – citation TBC in copy editing

Stammers, like Tillson, is more favorable to the promise that unconventional enhancement might hold for educational purposes, but departs from the better trodden path of the literature of cognitive enhancement by considering not what might be added or inserted, but what might helpfully be removed. Education, Stammers contends, would be improved by the excision or overwriting by technological means of individual 'ill-grounded, distorted, or otherwise epistemically faulty cognitions' that 'have a range of deleterious effects on multiple aspects of both teaching and learning'.¹⁵ Doing so, however, would threaten to 'cheat' the socially disadvantaged by eliminating some downstream injustices without giving occasion to reflect on those further upstream, so this enhancement would need to be supplemented by reflection and public discussion.

We hope that these papers stimulate further thought about what is desirable about education so that we can practice it better in the present and so that we can think more clearly about what lines of research to pursue by way of human enhancement, and about the relative value of the losses we might be liable to sustain.

¹⁵ Stammers, this issue – citation TBC in copy editing