

# **The Ethics of Enhancement of Intellectual Abilities in Children: A Risk of Creating ‘Superhuman’ Disabled?**

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**PhD in Bioethics and Medical Jurisprudence**

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**Jenny Imke Krutzinna**

School of Law

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# **PRELIMINARIES**

## ABSTRACT

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**Name of University:** The University of Manchester  
**Candidate Name:** Jenny Imke Krutzinna  
**Degree Title:** PhD in Bioethics and Medical Jurisprudence  
**Thesis Title:** The Ethics of Enhancement of Intellectual Abilities in Children: A Risk of Creating ‘Superhuman’ Disabled?  
**Date of Submission:** 14 December 2016

Human enhancement continues to be hotly debated by both ‘professionals’ and academics, and increasingly also by the general public. This is no surprise, given that the idea of making human beings *better* – individually and collectively – has existed for centuries. Parents appear to be especially receptive to new ways of improving the qualities of their offspring – first and foremost their cognitive abilities – in the hope of giving them the best life possible. At the same time, children as not-yet autonomous persons are vulnerable to the decisions made on their behalf. This dynamic has led to a long-running philosophical debate about the moral permissibility of paediatric enhancement. Unfortunately, this debate has somewhat stalled at the point of disagreement on general permissibility, with both sides strongly relying on the notion of well-being to support their respective positions. Rapid progress in the sciences, including the development of the new CRISPR-Cas9 technique, holds much promise for effective cognitive enhancement in children, and this makes proper ethical assessment an urgent matter.

Arguing that enhancement is here to stay and that prohibition is not a feasible option in a globalised world, I suggest that the debate should instead focus on what cognitive enhancement in children is likely to mean for the welfare of children. Addressing the question of whether enhancement of intellectual abilities in children is likely to lead to the creation of ‘superhuman’ disabled children – that is, children with superior or even yet-unseen cognitive capacities but a disability in some other sense (medical, social or both) – I draw on evidence from various fields, including education, law, disability studies and sociology, to demonstrate that the positive effect of cognitive ability on individual well-being is frequently overestimated and can thus not serve as a moral justification for cognitive enhancement. Furthermore, the current legal environment with regard to children with higher intellectual abilities gives cause for concern about the well-being of future cognitively enhanced children and urges us to address prevailing shortcomings in educational provision before deliberately engaging in the creation of more cognitive potential. Suggesting that any moral judgment about cognitive enhancement should focus strongly on the ends pursued, I argue that the welfare of children is endangered not so much by the new possibilities and methods of enhancement as by the failure to fully appreciate children’s need for the provision of appropriate opportunities to match their individual abilities.

## **DECLARATION & COPYRIGHT STATEMENT**

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## DEDICATION

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“Why should you live in a world without feeling its weight?”

— *Karl Ove Knausgård*

(To Lukas)

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## THE AUTHOR

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### EDUCATION

**PhD Bioethics and Biomedical Jurisprudence** **Jan 2014 – Dec 2016**

Centre for Social Ethics and Policy, The University of Manchester

Thesis: “The Ethics of Cognitive Enhancement in Children: a Risk of Creating ‘Superhuman’ Disabled?”

**MA Health Care Ethics and Law (Part-time)** **Sep 2010 – Sep 2012**

Centre for Social Ethics and Policy, The University of Manchester

Dissertation: “Who Wants to Live Forever? – The Ethics of Immortality and a Person’s Rational Desire as Justification for Significant Life Extension”

**MA (Oxon) Jurisprudence** **Oct 2001 – July 2004**

St. Anne’s College, University of Oxford

### PUBLICATIONS AND CONFERENCE PRESENTATIONS

#### Publications

- **Can a Welfarist Approach be used to justify a Duty to Cognitively Enhance Children?**  
(2016) 30 Bioethics 528
- **Cognitively Enhanced Children: the Case for Special Needs and Special Regulatory Attention**  
(2016) 8 Law, Innovation and Technology 177
- **Beyond an Open Future: Cognitive Enhancement and the Welfare of Children**  
*forthcoming*: Cambridge Quarterly of Healthcare Ethics, Volume 26, Number 2, April 2017.
- **Shaping Children: The Pursuit of Normalcy in Cognitive Neuroenhancement in Children**  
*forthcoming in* Nagel (ed.), Pediatric Neuro-Enhancement, Advances in Neuroethics, Springer Press, 2017.

## Conference Presentations

- *Reflections on Bioethics and Law*, November 2016, Centre for Social Ethics and Policy, School of Law, The University of Manchester (UK)  
**Title: “Human Enhancement: Is it really ‘good for you’? (with Sarah Carter)”**
- *School of Law PGR Conference 2016*, October 2016, The University of Manchester (UK)  
**Title: “Beyond an Open Future: Cognitive Enhancement and the Welfare of Children”**
- *13th World Congress of Bioethics 2016*, June 2016, International Association of Bioethics Conference (IAB), Edinburgh (UK)  
**Title: “Cognitive Enhancement: Of Child Geniuses and Disability”**
- *Interdisciplinary Research Week*, March 2016, University of Osnabrück (Germany)  
**Title: “Shaping Children: Ethical Challenges in Cognitive Neuro-Enhancement”**
- *Human Enhancement and the Law: Regulating for the Future*, January 2016, Faculty of Law, University of Oxford, St. Anne’s College, Oxford (UK)  
**Title: “Cognitively Enhanced Children: Learnings from their Gifted Predecessors”**
- *Enhancing the Understanding of Enhancement*, October 2015, Center for the Study of Bioethics and The Hastings Center, Belgrade (Serbia)  
**Title: “A Duty to Cognitively Enhance Children and the Welfarist Approach”**
- 9<sup>th</sup> Postgraduate Bioethics Conference: *Binaries in Bioethics and Biolaw: What Role Should They Serve?*, September 2015, Manchester (UK)  
**Title: “Cognitive Enhancement in Children: Beyond Binaries”**

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Education Act 1996

Equality Act 2010

Human Fertilisation and Embryology Act 1990

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Human Rights Act 1998

Serious Crime Act 2015

### **Other Jurisdictions**

Americans with Disabilities Act of 1990

No Child Left Behind Act of 2001

### **International Conventions**

Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol. 1577

Convention on the Rights of Persons with Disabilities: resolution / adopted by the General Assembly, 24 January 2007, A/RES/61/106

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O (A Minor) (Care Order: Education: Procedure), Re [1992] 4 All ER 905

R (Howard League for Penal Reform) v Secretary of State for the Home Department [2002] EWHC 2497 (Admin)

R (on the application of Tigere) (Appellant) v Secretary of State for Business, Innovation and Skills (Respondent) [2015] UKSC 57

S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council [2005] EWHC 196 (Admin), [2005] ELR 443

### **Europe**

Case C-354/13 Fag og Arbejde (FOA) (on behalf of Karsten Kaltoft) v Kommunernes Landsforening (KL) (on behalf of the Municipality of Billund) ECLI:EU:C:2014:2463

### **Other Jurisdictions**

Auton (Guardian ad litem of) v British Columbia (AG) [2004] 3 SCR 657, 2004 SCC 78

State v Garber 419 P2d 896 (Kan 1966)

# **PART I: INTRODUCTION**

**“Ability is of little account without opportunity.”**  
— *Napoléon Bonaparte*<sup>1</sup>

## CHAPTER 1: Introduction

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A common and generally admirable parenting goal is to give children the best possible life prospects and to enable them to live good lives. Parents have ethical and legal responsibilities to act in the best interests of their children, and these responsibilities are increasingly important in times of rapidly developing biotechnologies<sup>2</sup> that will likely soon be incorporated into parenting strategies. Consequently, this thesis critically examines whether attempts to cognitively enhance children should be sanctioned by ethics and/or law.

The idea of making human beings *better*, in some sense or another, has long been a subject of the arts, including literature and film,<sup>3</sup> as well as the sciences;<sup>4</sup> it has entered the business world through the concept of *kaizen*,<sup>5</sup> which sees continuous improvement as a corporate strategy and has aroused the interest of biotech and pharmaceutical companies hoping to commercialise this trend. A particular focus appears to be on the improvement of cognitive abilities, including intelligence.<sup>6</sup> A search for the term “increase brain power” on Amazon.co.uk brings up more than

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<sup>1</sup> MM Ballou, *Edge-Tools of Speech* (Ticknor and Company 1886) 1.

<sup>2</sup> J Rifkin, *The Biotech Century: Harnessing the Gene and Remaking the World* (Jeremy P. Tarcher/Putnam 1998).

<sup>3</sup> See for instance, A Niccol and others, *Gattaca* (Film, United States: Columbia Pictures 1997); A Huxley, *Brave New World* (New Ed. 2004 edn, Vintage Classics 1932), to name but a couple.

<sup>4</sup> An example from the medical sciences is the use of drugs such as amphetamines to enhance performance in soldiers during World War II, as well as in athletes in various competitive sports: TD Noakes, ‘Tainted Glory – Doping and Athletic Performance’ (2004) 351 *New England Journal of Medicine* 847.

<sup>5</sup> This is Japanese for “improvement”. See I Masaaki, *Kaizen: The Key to Japan's Competitive Success* (New York, McGraw-Hill 1986).

<sup>6</sup> A study on public attitudes towards cognitive enhancement revealed a general belief that it is desirable to become more intellectually capable. See NS Fitz and others, ‘Public Attitudes Toward Cognitive Enhancement’ (2014) 7 *Neuroethics* 173.



5,000 results – including books, pills and music.<sup>7</sup> It is, therefore, no surprise that there is at least one ambitious research project underway in China to map the genes of 1,600 smart people in order to identify the genes linked to human intelligence.<sup>8</sup> Although similar attempts have not yet yielded promising results,<sup>9</sup> the successful identification of the genetic basis of our cognitive capacities could eventually lead to much more effective means of improving cognitive function.

Besides these scientific research endeavours, there is also a lively philosophical debate about human enhancement.<sup>10</sup> Broadly speaking, participants come down in two camps: those strongly in favour of enhancement and those strictly against it. For many, the issue appears to turn on the question of the moral permissibility of enhancement, in general.<sup>11</sup> The reasons given by either side to defend their respective positions include many familiar ethical concerns, such as those based on biomedical principles,<sup>12</sup> and are not specific to *cognitive* enhancement, which poses special and additional challenges to both ethics and law, and is the topic of the present thesis.

The source of these additional issues can be found in the special relationship people seem to have with their brain: few human traits are as controversial as intelligence, which continues to come under scrutiny as a measure and a value, and has not

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<sup>7</sup> This is the result for the following search: <[www.amazon.co.uk/s/ref=nb\\_sb\\_noss\\_2?url=search-alias%3Daps&field-keywords=increase+brain+power&rh=i%3Aaps%2Ck%3Aincrease+brain+power](http://www.amazon.co.uk/s/ref=nb_sb_noss_2?url=search-alias%3Daps&field-keywords=increase+brain+power&rh=i%3Aaps%2Ck%3Aincrease+brain+power)> accessed 7 August 2016.

<sup>8</sup> E Yong, 'Chinese Project Probes the Genetics of Genius' (2013) 497 *Nature* 297.

<sup>9</sup> E Callaway, "'Smart Genes' Prove Elusive' (*Nature News*, 2014) <[www.nature.com/news/smart-genes-prove-elusive-1.15858](http://www.nature.com/news/smart-genes-prove-elusive-1.15858)> accessed 7 August 2016.

<sup>10</sup> Although so much has already been written on the topic of human enhancement, new books and articles are continuously published. For a recently published overview of the state of the debate, see S Clarke and others (eds), *The Ethics of Human Enhancement: Understanding the Debate* (Oxford University Press 2016).

<sup>11</sup> Jürgen Habermas, for instance, opposes all forms of enhancement, while John Harris defends enhancement as morally permissible, and possibly obligatory. See J Habermas, *The Future of Human Nature* (Polity 2003) and J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007). Needless to say there is a range of views between these two extremes, some of which are addressed below.

<sup>12</sup> A comprehensive account of these principles can be found in TL Beauchamp and JF Childress, *Principles of Biomedical Ethics* (Oxford University Press 2001).

stopped exerting fascination. The relationship almost appears to be one of love-hate, with – on the one hand – reluctance to acknowledge the influence that intelligence may have on many aspects of life and – on the other hand – a tendency to secretly take over-the-counter brain booster pills and to buy ‘intelligence toys’ for children. Culturally, we are ambivalent towards intelligence: we admire talent and celebrate Nobel Prize laureates, but we are also painfully aware of the eugenic atrocities of the Second World War and are hesitant to attach too much value to ‘genetic genius’; that is, the idea that the worth of a person is somehow determined by his/her genes. This also explains why the debate surrounding cognitive enhancement has, at times, been heated, and has brought many bioethicists to contribute their views. Unfortunately, some of the arguments put forward appear to rely largely on moral intuitions, rather than being solid ethical arguments supported by empirical evidence.<sup>13</sup> One example of such an argument is the claim that cognitive enhancement is morally desirable because of the link between intelligence and life expectancy and/or health. This initially plausible claim can easily be challenged by a review of the empirical data, which reveals confusion between correlation and causality. Nutrition, for instance, has long been known to impact on the development of intelligence, but good nutrition also improves health and life expectancy. Clearly, a correlation between intelligence and health does not imply a causal relationship between the two;<sup>14</sup> rather, this causal relationship must be established independently.

This example serves as a reminder that we must carefully scrutinise the arguments that are advanced in this debate. Not only because many conflicting interests are

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<sup>13</sup> The debate surrounding empirical ethics is addressed in Chapter Three.

<sup>14</sup> M Sigman and SE Whaley, ‘The Role of Nutrition in the Development of Intelligence’ in Ulric Neisser (ed), *The Rising Curve: Long-Term Gains in IQ and Related Measures* (American Psychological Association 1998); R Colom, JM Lluís-Font and A Andrés-Pueyo, ‘The Generational Intelligence Gains are Caused by Decreasing Variance in the Lower Half of the Distribution: Supporting Evidence for the Nutrition Hypothesis’ (2005) 33 *Intelligence* 83.

involved, but also because so much is potentially at stake for individuals and the future of our species. The motivation to find solutions for humankind's biological challenges is huge, but in the quest to overcome our inborn limitations we must not leave ethics behind. The actual progress made to date in enhancing human beings' cognitive capacities might be small, but advances in the pharmaceutical and biotechnological fields mean that it is time to come up with meaningful ethical guidance and appropriate regulatory frameworks to deal with current and future developments. This was recently acknowledged by the Nuffield Council on Bioethics, which identified human genome editing for enhancement purposes as a matter requiring attention.<sup>15</sup> Great urgency is required in this regard, because many promising enhancement interventions are likely to require application very early in life (and even prenatally, with interventions that involve embryo selection or genetic engineering), and may thus permanently affect children rather than autonomous adults.<sup>16</sup>

It is my aim in this thesis to step back from the assumption that intellectual abilities are unconditionally positive, that more is always *better* and thus that attempts to increase them are necessarily morally justified, if not required.<sup>17</sup> Drawing on empirical evidence, I hope to show that the potential benefits of cognitive enhancement are frequently overestimated at the expense of other factors that may impact on the value and quality of life. Putting objective values such as health and

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<sup>15</sup> Nuffield Council on Bioethics, *Genome Editing: An Ethical Review* (2016) <<http://nuffieldbioethics.org/project/genome-editing/ethical-review-published-september-2016/>> accessed 15 November 2016.

<sup>16</sup> The fact that these children will have important decisions made for them is at the core of Habermas' objections, because they 'may no longer see themselves as the undivided authors of their life': Habermas (n 11) 67.

<sup>17</sup> On the idea of a moral duty to cognitively enhance, see J Harris, 'Enhancements are a Moral Obligation' in Julian Savulescu and Nick Bostrom (eds), *Human Enhancement* (OUP Oxford 2009) and J Savulescu, A Sandberg and G Kahane, 'Well-Being and Enhancement' in Julian Savulescu, Ruud Ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011).

productivity before subjective measures of well-being might be counterproductive, because unhappiness is likely to undermine productivity.<sup>18</sup> Therefore, attempts to optimise society for such productivity through the use of cognitive enhancement might require at least some consideration of individual experience. In addition, for the enhancement of intellectual abilities to be deemed morally permissible, the focus should be on individual well-being rather than societal productivity and objective measures. Thus, the debate must be reframed in terms of the ends pursued and the search for an answer to the simple question: “What for?” This question appears to have been lost in the enhancement debate, in which resort to the vague notion of well-being has become the justification of choice for all kinds of enhancement interventions. One of my key arguments in this context is that following a mixed model of disability – that is, one that does not rely exclusively on medical criteria but also includes social factors – cognitive enhancement of children might, under some circumstances, be considered to lead to the creation of ‘superhuman’ persons with some disability. This might appear counterintuitive to advocates of cognitive enhancement, who fail to acknowledge that the children’s superior functional capacities will often result in social, emotional and developmental difficulties, leading to significant impairment. If the welfare of children is of the great moral and legal importance claimed in both philosophy and law, then cognitive enhancement in children cannot be justified categorically. To be considered morally permissible, any paediatric cognitive enhancement intervention would need to be accompanied by certain environmental enhancements, involving additional duties for both parents and the state.

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<sup>18</sup> The link between productivity and well-being is challenged by A Buchanan, *Beyond Humanity? The Ethics of Biomedical Enhancement* (Oxford University Press 2013) 36-37. Buchanan argues that ‘increased productivity does not guarantee increased well-being, because sometimes what people value turns out not to be good for them’: A Buchanan, ‘Enhancement and the Ethics of Development’ (2008) 18 *Kennedy Institute of Ethics Journal* 1, 10.

These issues are explored in the articles that form the body of this thesis. Before we get to these, however, the following introductory section provides important foundational information. In Chapter Two, I define key concepts that are relevant to this thesis and provide the ethical and legal background for my argument. Reviewing the literature, I identify gaps in the debate that I intend to address. Chapter Three covers the pertinent ethical issues relating to my research. The relevant legal issues are addressed in Chapter Four. A brief summary of the thesis articles is given in Chapter Five and the full articles are replicated in Chapters Six, Seven, Eight and Nine. Finally, Chapter Ten provides an overarching conclusion to the thesis, drawing on the arguments advanced in the four papers and reflecting on the moral and legal implications of these arguments for cognitive enhancement in children.

## CHAPTER 2: Ethical and legal background

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### 2.1 Introduction

Human enhancement is a topic that exerts fascination and invokes fears; it has sparked controversy and has been at the centre of a long-standing debate.<sup>1</sup> It seems fair to argue that, although progress in enhancement technologies has been – and continues to be – slow, ethical debate has been even slower in churning out meaningful conclusions that can be translated into actual moral guidance and function as the basis for legal rules and public policy. Since it is not only the interventions that require regulation, but also the research that leads to them (which is already ongoing), greater urgency is needed.<sup>2</sup> Law, as a discipline, has traditionally lacked the capacity (or creativity) to imagine future scenarios; but in the absence of actual enhanced persons, it might be necessary to transpose current legal rules to the greatest extent possible until new laws are made. Philosophy, on the other hand, cannot be said to suffer from the same problem. Rather, it is customary for this discipline to draw on the methodology of thought experiments, often involving quite extreme hypothetical cases, in order to come up with solutions to moral dilemmas. Outside of a classroom setting, however, practical applicability matters a great deal; and in the context of cognitive enhancement of children, all parties involved – parents, teachers, healthcare professionals, judges and legislators – need practical guidance on making morally right decisions. For this reason, in addition to theoretical discussion of the issues at hand, there must be clear focus on the practical

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<sup>1</sup> An overview of this debate can be found in J Savulescu and N Bostrom, *Human Enhancement* (Oxford University Press 2009).

<sup>2</sup> Genome editing for human reproduction was identified by the Nuffield Council on Bioethics as an issue requiring urgent attention: Nuffield Council on Bioethics, *Genome Editing: An Ethical Review* (2016).

relevance of any conclusions drawn. Specifically, we must not simply ponder on the question of whether or not cognitive enhancement in children is morally permissible (and if so, under which circumstances), but we must go a step further and reflect on the implication of enhanced children – for them, as well as for the unenhanced and for all of us together, as a community.

The topic of cognitive enhancement raises a wide range of issues and touches upon several disciplines, which use varying definitions and their own specific terminology. In the following section, I will review the relevant literature to provide the necessary background and a common definitional starting point for my argument.

## **2.2 Literature review**

A number of key terms and concepts will be used throughout this thesis and merit at least a brief explanation here, although more detail will be provided in the chapters that ensue. The precise meaning and definition of each of these terms has been the topic of many academic writings and is, in some cases, best described as controversial. A thorough review or even critique of these differing views and definitions is beyond the scope of my current research. For the purposes of this thesis, I will give a brief outline of the major controversies and explain them in more detail only when this is directly relevant for the arguments I advance.

It will become apparent that discussion of enhancement is not always straightforward, partly because common words are used in a philosophical or legal context without widely agreed definitions. Rather than clarifying the issues, the language often obfuscates what lies at the heart of the debate. By avoiding too strict a

reliance on predefined terminology and instead adopting broader, more encompassing definitions, I attempt to largely avoid this problem.<sup>3</sup>

### 2.2.1 Enhancement

Defining enhancement is not a simple task. Most commonly, it is simply equated with improvement. Julian Savulescu explains:

When we are considering human enhancement, we are considering improvement of the person's life. The improvement is some change in state of the person – biological or psychological – which is good.<sup>4</sup>

This improvement view, however, is not uncontroversial. Allen Buchanan, for instance, calls it a mistake to assume that an enhancement, by definition, makes one better off.<sup>5</sup> Ruth Chadwick also criticises the improvement approach as being uninformative and potentially misleading, 'in that it directs attention away from the need to ask what purposes are being served and complicates the issue of assessment of the intervention from a moral point of view'.<sup>6</sup> Instead, she suggests an additionality view, which defines enhancement as 'an addition to or exaggeration of a characteristic which may or may not constitute an improvement'.<sup>7</sup> The point about

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<sup>3</sup> As a disclaimer, I would like to point out that in some instances it is virtually impossible to find terms or definitions that are universally accepted. For instance, when talking about disability, use of person-first language is considered politically correct. However, "person with disability" is deemed inappropriate by some disabled people, who prefer identity-first language. I have taken every care to be sensitive to these issues and hope not to cause offence in any way, but language can be tricky and preferences are rarely universal.

<sup>4</sup> J Savulescu, A Sandberg and G Kahane, 'Well-Being and Enhancement' in Julian Savulescu, Ruud Ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011) 7.

<sup>5</sup> Buchanan gives the example of enhanced hearing, which can actually make an easily distracted person worse off, at least in a noisy environment: A Buchanan, *Beyond Humanity? The Ethics of Biomedical Enhancement* (n 18) 23.

<sup>6</sup> R Chadwick, 'Therapy, Enhancement and Improvement' in Bert Gordijn and Ruth Chadwick (eds), *Medical Enhancement and Posthumanity*, vol 2 (Springer 2008) 30.

<sup>7</sup> Ibid 31.



diverting attention from purposes is an important one and will be covered in detail in Chapter Eight.

Disagreement with regard to enhancement is not limited to its definition. Views on whether we should or should not engage in human enhancement also come in many shapes. Some take a pro-enhancement position, on the basis that enhancement is, by definition, positive and beneficial, and believe that we are morally obliged to pursue it as it entails an ‘improvement of the person’s life’.<sup>8</sup> Others take a more cautious approach, questioning the utility and desirability of intervening with the given, to the extent of being entirely opposed to enhancement. Notably, strong or extreme views tend to prevail, though a few neutralists suggest that enhancement is neither morally wrong nor required, but morally neutral.<sup>9</sup> The predominant approach to answering questions about the morality of enhancement has been to focus on a potential distinction between treatment/therapy and enhancement as a way of distinguishing morally justifiable from non-justifiable interventions.<sup>10</sup> This everlasting treatment-enhancement debate is highly unsatisfactory, because it relies on the concepts of health and disease to morally distinguish between types of interventions. In the absence of a clear and uncontroversial account of health and disease, this approach is frustrating and unproductive.

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<sup>8</sup> J Savulescu, RHJt Meulen and G Kahane, *Enhancing Human Capacities* (Wiley-Blackwell 2011). Unfortunately, the authors do not offer any guidance on what should be done when there are two different but mutually exclusive ways of enhancing a person – for instance giving someone special musical talent or making him/her an extraordinary scientist. It is not clear from their argument whether it would matter which option is chosen.

<sup>9</sup> Ruth Chadwick can be seen as a neutralist in this sense. See Chadwick (n 6).

<sup>10</sup> For more detail on the history of this debate, see J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007).

## **A treatment-enhancement distinction?**

In essence, we can identify two approaches to the concept of disease, which David Resnik describes as “value-neutral” (descriptive) and “value-laden” (prescriptive), respectively.<sup>11</sup> The former has an empirical, factual basis rooted in human biology and is most famously expressed by Christopher Boorse, who defines disease as a departure from normal species-functioning (in a statistical sense). This theory has been developed further by Norman Daniels, who suggests that ‘natural selection can provide an account of species-typical functions: functional abilities are traits that exist in populations because they have contributed to the reproduction and survival of organisms that possessed them’.<sup>12</sup> In contrast, the normative or prescriptive approach is based on social, moral and cultural norms and defines a healthy person as someone who falls within these norms; any deviation from them is classed as a disease. This explains why, for instance, homosexuality was and is considered a disease only by some (in some places, and at certain times).<sup>13</sup>

Criticism of both approaches is abundant. With regard to the former, Sarah Chan and John Harris point out that:

[T]he concept of normalcy in terms of what is ‘species-typical’ is redundant in a world that already incorporates modern medical technology to transcend the limits of ‘natural’ health; therefore the distinction between therapy and enhancement is blurred at best and at worst non-existent. This is particularly applicable to mental capacity, where the range and definition of what is

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<sup>11</sup> DB Resnik, ‘The Moral Significance of the Therapy-Enhancement Distinction in Human Genetics’ (2000) 9 Cambridge Quarterly of Healthcare Ethics 365.

<sup>12</sup> Ibid 366.

<sup>13</sup> It was included in the first edition of the Diagnostic and Statistical Manual (DSM): American Psychiatric Association, *Diagnostic and Statistical Manual: Mental Disorders* (American Psychiatric Association, Mental Hospital Service 1952) 39: “Sexual deviation”.

normal is so broad and complex as to render almost any alteration explicable as either therapy or enhancement.<sup>14</sup>

With regard to the second approach, one of the key objections to the distinction is that:

[I]t is our norms and values that defines what counts as disease, not merely biologically based characteristics of persons, and the arbitrariness in these hard cases comes from inconsistently applying our values. (...) We cannot point to such a line as the grounds or basis for drawing moral boundaries since we are only pointing to a value-laden boundary we have constructed.<sup>15</sup>

The problem remains that the existence of a clear and uncontroversial account of health and disease is highly questionable. As a result, neither approach can provide us with a solid moral boundary between enhancement and therapy, and some have argued that a complex definition is unnecessary.<sup>16</sup> Consequently, '[t]he overwhelming moral imperative for both therapy and enhancement is to prevent harm and confer benefit. Bathed in that moral light, it is unimportant whether the protection or benefit conferred is classified as enhancement or improvement, protection, or therapy.'<sup>17</sup>

Few new arguments have been advanced in recent years, and as far as this thesis is concerned, the existence of a justifiable distinction is merely incidental: the focus of my research is to establish whether cognitive enhancement in children can be

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<sup>14</sup> S Chan and J Harris, 'Cognitive Regeneration or Enhancement: The Ethical Issues' (2006) 1 *Regenerative Medicine* 361, 363. Interestingly, the concept of normalcy is relatively new. See LJ Davis, *The End of Normal: Identity in a Biocultural Era* (University of Michigan Press 2014).

<sup>15</sup> A Buchanan and others, *From Chance to Choice: Genetics and Justice* (Cambridge University Press 2001) 119.

<sup>16</sup> Harris (n 10) 36; A Sandberg, 'Cognitive Enhancement: Upgrading the Brain' in Julian Savulescu, Ruud ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011) 72.

<sup>17</sup> Harris (n 10) 58.

morally justified (and if so, under which circumstances), irrespective of the potential categories of treatment or enhancement these interventions might fall under. It is worth noting that some authors claim that enhancement, itself, can sometimes be in the form of a diminishment (e.g. in intelligence), but that this does not affect the nature of the enhancement because it still constitutes an improvement, even if some capacity is effectively reduced; what matters is an increase in well-being, not a particular function or capacity.<sup>18</sup> A detailed critique of this position is presented in Chapter Six. The defence of a moral duty to enhance children is the most extreme form of the pro-enhancement view, but there are also more moderate positions.

### **A moral duty to enhance?**

The typical pro-enhancement argument, in very simplified terms, states that enhancement necessarily implies an improvement and is thus *good*.<sup>19</sup> Therefore, it is also morally good, which, for some, is sufficient to argue for a moral duty to enhance in accordance with the principle of beneficence. Julian Savulescu famously coined the term ‘procreative beneficence’, which entails that ‘couples (or single reproducers) should select the child, of the possible children they could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information’.<sup>20</sup> This approach is not without its problems, as Michael Parker notes, because in the absence of any substantive concept of the ‘good life’:

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<sup>18</sup> The specific example given is a reduction in IQ. See BD Earp and others, ‘When is Diminishment a Form of Enhancement? Rethinking the Enhancement Debate in Biomedical Ethics’ (2014) 8 *Frontiers in Systems Neuroscience* 1.

<sup>19</sup> For an alternative view, see Chadwick (n 6).

<sup>20</sup> J Savulescu, ‘Procreative Beneficence: Why We Should Select the Best Children’ (2001) 15 *Bioethics* 413.

but as an abstract and never ending ‘perfectionist’ pursuit of the ‘maximisation of well-being’, its lack of connection to any substantive or recognisable concept of what constitutes the ‘good life’ renders it incoherent as an aspiration, and its consequent ‘never-ending-ness’ means that it is inevitably undermining the very beneficence it purports to pursue.<sup>21</sup>

### **Positions on enhancement**

With regard to enhancement, there are three broad views. The first is a clear pro-enhancement position, prominently defended by Julian Savulescu, who argues that enhancement is, by definition, a good thing and thus morally obligatory: no moral person can justify a refusal to enhance, and parents therefore have a moral duty to have the best possible children.<sup>22</sup> For Savulescu, there is a moral obligation to create a smarter society, as this will decrease welfare dependency, school dropouts, jail crowding and poverty.<sup>23</sup> It is not clear how it follows from this that an individual has a moral obligation to be enhanced, as this would imply an individual’s moral duty to improve society – a view that only the most communitarian thinkers would probably subscribe to. In addition, the empirical evidence on the potential link between intelligence and subjective well-being is very limited, so clarification is needed on the meaning of ‘best society’ and how such goals can be balanced with individual interests. Allan Buchanan notes that a strictly consequentialist approach would view even a minimal improvement to society as a justification for an enhancement, even at the cost of making a small number of individuals less well off.<sup>24</sup> Recently, it has been suggested that parents should forgo natural procreation and opt for in-vitro

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<sup>21</sup> M Parker, ‘The Welfare of the Child’ (2005) 8 *Human Fertility* 13, 17.

<sup>22</sup> Savulescu (n 20).

<sup>23</sup> A Sandberg and J Savulescu, ‘The Social and Economic Impacts of Cognitive Enhancement’ in Julian Savulescu, R. H. J. ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011).

<sup>24</sup> Buchanan and others (n 15).

fertilisation using sperm donated by highly intelligent men in order to increase the overall intelligence level of the population.<sup>25</sup>

John Harris appears to take a similar position to Savulescu when he claims that, since enhancement is by definition an improvement and adds to a person's welfare, there is, in fact, a moral duty to enhance.<sup>26</sup> This view is shared in principle by Iain Brassington, who disagrees on the moral force of this potential duty but does not deny that enhancement, per se, is a good thing.<sup>27</sup> Harris suggests that we should make children a little bit smarter, so they can benefit more from their education and lead better lives as a result.<sup>28</sup> However, despite its initial appeal, his argument raises some questions. For instance, is cognitive enhancement really the best approach to maximising educational effectiveness, or should we find alternative approaches, such as improving education? Of course this does not imply that, subject to safety and efficacy considerations, cognitive enhancement is not a valid approach at all, but it is important not to lose sight of (already available) alternatives. Amongst those who do not currently benefit from education as well as they might are the so-called highly gifted, who might not be helped by cognitive enhancement.<sup>29</sup> One might also question what Harris' goal is: education can surely only be a means to an end. Presumably, Harris has some notion of well-being (including one's economic

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<sup>25</sup> OM Moen, 'Bright New World' (2016) 25 *Cambridge Quarterly of Healthcare Ethics* 282. This argument is addressed in detail in Chapter Eight.

<sup>26</sup> Harris (n 10).

<sup>27</sup> I Brassington, 'Enhancing Evolution and Enhancing Evolution' (2010) 24 *Bioethics* 395.

<sup>28</sup> Harris (n 10) 1-7.

<sup>29</sup> Unless we consider diminishment a form of enhancement, as has been suggested by Earp and others (n 15). Also, note the work of Barbara Sahakian, who suggests that the highly gifted might be further benefitted by cognitive enhancement. See for instance, S Morein-Zamir and B Sahakian, 'Pharmaceutical Cognitive Enhancement' in Judy Illes and Barbara Shahakian (eds), *The Oxford Handbook of Neuroethics* (Oxford University Press 2011).

situation, health, etc.) in mind, but such a welfarist view, in itself, requires justification.<sup>30</sup>

A more moderate view is defended by Neil Levy, who argues that it is often better to adjust our environment than to change our biology when there is a mismatch between our capacities and our needs.<sup>31</sup> This is because even if such biological modifications were to prove effective, they would likely come at a higher price than environmental modifications.<sup>32</sup> Depending on the specific requirements, the best strategy might be a combination of interventions to maximise effectiveness.<sup>33</sup> Nicholas Agar also makes a more cautious argument for enhancement, advocating for only a moderate form of enhancement – one that does not significantly exceed what is currently possible for human beings.<sup>34</sup> For Agar, extreme enhancement carries the risk of creating ‘post-persons’ with a higher moral status than current persons, and this would be ‘bad news for the unenhanced’,<sup>35</sup> because this difference in moral status would ‘permit the post-person to inflict harm on the mere person’.<sup>36</sup>

Finally, there are those who strongly oppose enhancement.<sup>37</sup> One of the most prominent defenders of the view that enhancing children is morally wrong is Jürgen

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<sup>30</sup> This point is elaborated in Chapter Six. Note that John Harris does not believe that welfare is the only candidate for the aims and purposes of education, but argues that humans must get smarter if they are to survive. He also argues that cognitive enhancement might be necessary for moral enhancement. See J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007) and J Harris, *How to be Good: The Possibility of Moral Enhancement* (Oxford University Press 2016).

<sup>31</sup> N Levy, ‘Ecological Engineering: Reshaping Our Environments to Achieve Our Goals’ (2012) 25 *Philosophy & Technology* 589, 590.

<sup>32</sup> *Ibid* 599-600.

<sup>33</sup> J Savulescu and A Sandberg, ‘Neuroenhancement of Love and Marriage: The Chemicals Between Us’ (2008) 1 *Neuroethics* 31, 41.

<sup>34</sup> N Agar, *Truly Human Enhancement: A Philosophical Defense of Limits* (MIT Press 2013).

<sup>35</sup> *Ibid* xiii.

<sup>36</sup> *Ibid* 191.

<sup>37</sup> Other prominent opponents to enhancement are Leon Kass and Francis Fukuyama, who believe that the very essence of human nature is undermined by enhancement, and that attempts to enhance are thus wrong. See President's Council on Bioethics and L Kass, *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Harper Perennial 2003); F Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (Picador 2003).

Habermas. For him, such interventions pose a threat to self-reflection and self-determination, as enhanced persons may feel as if they have lost the sole authorship of their lives:

Insofar as the genetically altered person feels that the scope for a possible use of her ethical freedom has intentionally changed by a prenatal design she may suffer from the consciousness of sharing authorship of her own life and her own destiny with someone else.<sup>38</sup>

This argument appears unconvincing. As Harris notes, the same could also be said about most decisions made for a child by his/her parents; for instance, a decision to vaccinate shortly after birth: 'It has not been threatened by the possibility of human enhancement any more than the myriad of other prior decisions that have determined the nature of the world we have inherited and the bodies and minds we possess.'<sup>39</sup> For Habermas, however, there is no justification for enhancement, even in the case of physical disability:

Not even the highly general good of bodily health maintains one and the same value within the contexts of different life histories. Parents can't even know whether a mild physical handicap may not prove in the end to be an advantage for their child.<sup>40</sup>

This raises an interesting point about our general understanding of advantages/abilities and disadvantages/disabilities, which will be revisited

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<sup>38</sup> J Habermas, *The Future of Human Nature* (Polity 2003) 82.

<sup>39</sup> Harris (n 10) 139.

<sup>40</sup> Habermas (n 38) 86.



throughout this thesis.<sup>41</sup> As mentioned above, there might be significant drawbacks to any enhancement,<sup>42</sup> and although I generally disagree with Habermas, his concern for our actual grasp of what is or is not *good* (or *better*) for someone should not be dismissed too easily. In a similar vein, Joel Feinberg argues that children have a “right to an open future”, which means that parents have a moral duty to keep their children’s future options open until they are capable of making their own decisions.<sup>43</sup> However, this right is not so much about future life options as it is about children’s abilities and opportunities to become autonomous and self-determined persons. This argument, which will be more fully explored in Chapter Eight, could be interpreted as a caution against cognitive enhancement of children.<sup>44</sup>

Finally, a frequent charge against the pro-enhancement argument is that of eugenics. Michael Sandel, for instance, sees the ‘shadow of eugenics’ hanging over the genetic engineering and enhancement debate.<sup>45</sup> In an elaborate account, Robert Sparrow criticises those who speak out in favour of human enhancement – most notably Harris and Savulescu – claiming that their ‘new’ or ‘liberal’ eugenics approach is not significantly different from the ‘old’ eugenics.<sup>46</sup> Sparrow points to the illogicality in their claim that the difference lies in the fact that eugenic decisions would be left to individuals and not to the state. This, he argues, makes no sense if the justification for enhancement is based on a utilitarian goal of promoting well-being, which would

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<sup>41</sup> Certain types of Paralympians are sometimes referred to as ‘superhuman’, challenging the notion of ability / disability in light of their ‘super-ability’: T Shakespeare, ‘The Paralympics – Superhumans and Mere Mortals’ (2016) 388 *The Lancet* 1137.

<sup>42</sup> Amongst other things, there might be ‘compensating losses’ associated with a particular type of enhancement, whereby one trait is improved at the expense of another. There is evidence for this effect in the case of cognition: NJ Davis, ‘Transcranial Stimulation of the Developing Brain: A plea for Extreme Caution’ (2014) 8 *Frontiers in Human Neuroscience* 1, 3.

<sup>43</sup> J Feinberg, ‘The Child’s Right to an Open Future’ in William Aiken and Hugh LaFollette (eds), *Whose Child? Children’s Rights, Parental Authority, and State Power* (Littlefield, Adams & Co. 1980).

<sup>44</sup> This is my interpretation of Feinberg’s view, because, writing in 1980, he did not address the point of enhancement explicitly.

<sup>45</sup> MJ Sandel, *The Case Against Perfection* (Harvard University Press 2009) 68.

<sup>46</sup> R Sparrow, ‘A Not-So-New Eugenics’ (2011) 41 *Hastings Center Report* 32.

in turn seem to justify (if not require) at least some state involvement. If what matters is individual well-being, Sparrow argues, it follows that children ought to be enhanced to carry the ‘genetic markers of social privilege’, including certain racial markers, as it is often easier ‘to alter a child’s genetics than the social conditions that will shape the ultimate impact of their genetics’.<sup>47</sup> This is a worrying conclusion, but I am less alarmed by the fact that genetic alterations might be made than by the general trend of seeing adjustment in children (and, insofar as possible, in adults) as more convenient and achievable than addressing the root causes that make such changes desirable in the first place. This has much to do with the political and economic system we currently live in, and both Sparrow and Sandel express concern about the free market forces that bear on decisions to enhance children, even in the absence of state coercion.<sup>48</sup> This point is addressed in more depth in Chapter Eight.

As has been shown, there is much disagreement over the meaning and morality of enhancement, and this disagreement extends to the question of what types of intervention count as enhancement.

### **Biomedical enhancement in children**

Views on what constitutes enhancement range from conventional means, such as education, to modern technologies and genetic interventions.<sup>49</sup> For the present

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<sup>47</sup> Ibid 35.

<sup>48</sup> Ibid 40; Sandel (n 45) 75. This point is often associated with Robert Nozick’s idea of the “genetic supermarket”. Nozick rejects the regulation of genetic choices, preferring parents to freely choose their children’s characteristics and arguing that “[t]his supermarket system has the great virtue that it involves no centralized decision fixing the future human type(s)”. R Nozick, *Anarchy, State, and Utopia* (Basic Books 2013) 315.

<sup>49</sup> Some philosophers argue that there is no moral difference between education and other forms of enhancement. See for example Harris (n 10) 2. I do not intend to deal with this argument in detail, because for the purpose of my research there is no particular relevance attached to the method of enhancement but instead to the goal and outcome. Education, as commonly understood, is uncontroversial and legal; biomedical enhancements are not (yet). This, I believe, is sufficient to justify the focus here on one rather than the other. In addition, as Michael Sandel suggests, the

purposes, I am concerned with biomedical enhancements, as these constitute the most controversial methods and raise particular ethical and legal questions, especially where they involve embryos or children. Current methods include the combination of preimplantation genetic diagnosis (PGD) and in-vitro fertilisation (IVF), but newer technologies – such as gene editing or other forms of genetic modification – are also conceivable.<sup>50</sup> The ethics specific to these technologies are not considered in this thesis, but some of the legal issues relating to the use of embryos are outlined in Chapter Four.

Finally, it is important to note that I focus exclusively on interventions in embryos and children, because the most effective methods are likely to require application early in life, probably prenatally. I am not concerned with interventions in adults, such as the use of drugs or “brain doping” to increase short-term cognitive performance, but focus instead on interventions in embryos and infants up to the age of one year. At the age of approximately 12 months, a crucial cognitive developmental phase begins, defined by the ability to actively learn from others.<sup>51</sup> At this point, rather than relying merely on trial-and-error experiments, an infant is capable of focusing simultaneously on a person and an object, and this allows for an exchange of information and knowledge between the infant and other people. I do not limit my research to prenatal interventions, because there is limited legal protection afforded to the unborn (in England), and this prevents a thorough analysis of children’s interests, which only become relevant after birth.

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similarity might be a reason to question our traditional child-rearing practices, rather than an argument in favour of embracing high-tech practices: Sandel (n 45) 61.

<sup>50</sup> Henry Greely envisions a new procedure called ‘Easy PGD’, which would effectively combine PGD and IVF to allow for cheap and safe sexless reproduction. He believes that developments in stem cell research and genetics will make this a reality in the next decades. See HT Greely, *The End of Sex and the Future of Human Reproduction* (Harvard University Press 2016).

<sup>51</sup> GD Heyman and CH Legare, ‘Social Cognitive Development: Learning from Others’ in Donal E Carlston (ed), *The Oxford Handbook of Social Cognition* (Oxford University Press USA 2013) 749.

From a legal perspective, the fact that cognitive enhancement is not yet possible in any significant way means that there is sparse literature on the topic. Current possibilities for enhancement are limited to the administration of psychotropic drugs in the absence of a corresponding psychiatric diagnosis, and gamete selection for high intelligence in IVF, but neither approach has been shown to be an effective method of cognitive enhancement. The legal issues that arise from these interventions relate to the potential conflict between parental rights and responsibilities and the welfare of the child, which I address in Chapter Four. At the time of writing, there was no case law on the specific issue of cognitive enhancement.

This concludes the introductory section on enhancement. Although the controversies and issues relating to enhancement have not been exhausted, sufficient background has been provided in preparation for the arguments that follow in subsequent chapters. I now turn to disability, the second major concept in this thesis.

### **2.2.2 Disability**

“Disability” is a term that is not easily defined, despite being widely used in everyday language. The precise definition of disability carries with it wide-ranging implications, and the main disagreement between definitions results from the type of disease model underlying the definition.

#### **Models of disability**

In defining disability, two models are typically used, each taking a different perspective. Historically, disease was described under a medical model, which saw disability as resulting from internal factors: it is a ‘personal limitation arising from the functional impairments that are part of a person’s physical constitution, whether

these impairments are congenital or acquired'.<sup>52</sup> In contrast, the social model distinguishes between impairments of a person and the resulting disability, which is thought to arise from society's response to those impairments. Increasingly, the focus is shifting, not least because the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) has advocated for the social model.<sup>53</sup>

Although some see a complete split between the two models,<sup>54</sup> disabilities writer Tom Shakespeare argues for a combined approach. The social model, by itself, he argues, is insufficient to explain important limitations experienced by persons with disabilities:

Wheelchair users are disabled by sandy beaches and rocky mountains. People with visual impairments may be unable to see a sunset, and people with hearing impairments will miss out on the sounds of birds, wind and waves. It is hard to blame the natural environment on social arrangements.<sup>55</sup>

Whilst this is an illuminating example in support of a hybrid approach, it is more readily applied to physical than to mental disabilities. Psychiatric disorders, such as depression, are currently 'framed and treated within a medical model as a biological disease',<sup>56</sup> and it is not easy to see how these would be described under a social model. Indeed, many disability rights advocates subscribe to this model, rejecting a 'broken brain' theory and appealing instead to the concept of neurodiversity, according to which atypical neurological development is simply a normal human

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<sup>52</sup> C Cameron, *Disability Studies: A Student's Guide* (SAGE 2013) 99.

<sup>53</sup> United Nations Convention on the Rights of Persons with Disabilities: resolution / adopted by the General Assembly, 24 January 2007, A/RES/61/106.

<sup>54</sup> DS Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (2nd edn, Oxford University Press 2010) 74.

<sup>55</sup> T Shakespeare, *Disability Rights and Wrongs Revisited* (Routledge 2013) 36.

<sup>56</sup> Davis, *The End of Normal: Identity in a Biocultural Era* (n 14) 60.

difference.<sup>57</sup> It is important to note that there has long been significant scepticism with regard to psychiatry, which has even resulted in what could be described as an ‘anti-psychiatry movement’.<sup>58</sup> Some of the historical criticisms relate to the repressive and controlling nature of psychiatric treatment, in general, but there have also been challenges to the existence of mental illness, itself.<sup>59</sup> Psychiatric disorders, or disorders that are perceived as such, are of particular relevance in the present context, because they are often the target of attempts to cognitively enhance children. Their peculiarity lies in their invisibility, in the sense that they are diagnosed through the clinical assessment of behavioural symptoms, which are often difficult to distinguish from normal childhood behaviours.<sup>60</sup> Concerns thus arise that naturally-occurring differences are medicalised to justify intervention to correct for undesirable traits and behaviours, due to a misguided belief in normalcy.

### **The concept of normalcy**

What originally began as a purely statistical concept has increasingly transformed into a normative notion. Developed by Sir Frances Galton in the nineteenth century, the statistical model of normal distribution was about numbers, and was a method of describing the pattern of occurrence of certain traits in humans. However, Galton’s fascination with human traits was not purely investigative: he hoped to intervene in nature and encourage people with high intellect to procreate more,<sup>61</sup> because he

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<sup>57</sup> P Jaarsma and S Welin, ‘Autism as a Natural Human Variation: Reflections on the Claims of the Neurodiversity Movement’ (2012) 20 Health Care Analysis 20.

<sup>58</sup> On the history and development of the movement, see M Nasser, ‘The Rise and Fall of Anti-Psychiatry’ (1995) 19 Psychiatric Bulletin 743.

<sup>59</sup> TS Szasz, *The Myth of Mental Illness: Foundations of a Theory of Personal Conduct* (first published 1974, Harper Perennial 2010).

<sup>60</sup> I Singh, ‘Beyond Polemics: Science and Ethics of ADHD’ (2008) 9 Nature Reviews Neuroscience 957.

<sup>61</sup> J Tabery, ‘Why Is Studying the Genetics of Intelligence So Controversial?’ (2015) 45 Hastings Center Report S9, S9.

believed in the hereditary nature of intelligence and the desirability of a society of ‘geniuses’.<sup>62</sup> Thus, he is seen as the inventor of eugenics.

Today, ‘[t]he relevant concept of normality is a messy one. It is partly socially constructed. It is partly context dependent. And it combines elements of the numerical and the normative.’<sup>63</sup> This is most readily apparent in discussions about mental disability, in which often arbitrary lines are drawn on a spectrum to demarcate what is ‘normal’ and what is not. Jonathan Glover cites Asperger autistic Clare Sainsbury as saying that:

‘[N]ormal’ people take it as a basic human right to be accepted as they are, while ‘the rest of us are viewed only in terms of what will make us more acceptable to them’. She adds that ‘the philosophy of normalization seems painfully familiar to those of us whose very disability lies in our ‘differentness’. Most of us have spent years being taught that who we are is fundamentally wrong and in need of cure.’<sup>64</sup>

The relevant medical classification manuals – the Diagnostic and Statistical Manual (DSM) by the American Psychiatric Association and the World Health Organization’s International Statistical Classification of Diseases and Related Health Problems (ICD) – seem to introduce more encompassing definitions of disease and disability with each update. For this reason, under the DSM-V, major depressive disorder now only requires two weeks of sadness.<sup>65</sup> In a way, it could be argued that it is becoming increasingly difficult to qualify as (or be classed as) ‘mentally healthy’. But there is another aspect to this, as Andrew Solomon points out:

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<sup>62</sup> F Galton, *Hereditary Genius: An Inquiry Into Its Laws and Consequences* (Macmillan 1869).

<sup>63</sup> J Glover, *Choosing Children: Genes, Disability, and Design* (Oxford University Press 2006) 13.

<sup>64</sup> *Ibid* 14.

<sup>65</sup> Davis, *The End of Normal: Identity in a Biocultural Era* (n 14) 52.

Aggressive advocacy by parents has helped to establish better services for kids with autism than for kids with other afflictions. If you attach better services to a diagnostic category, some doctors will apply that diagnosis to children for whom it is not entirely appropriate in order to access those services. Parents who might once have shunned an autism label to avoid being unjustly blamed for their child's disability are now willing to seek out that label so their children may qualify for special-education services.<sup>66</sup>

This is an important point, because such labelling can have far-reaching consequences for children, as is explained in detail in Chapter Seven. It also raises the issue of the difference between mental illness and neuroatypical identity, which is one of the topics of Chapter Nine.

### **Disability and cognitive enhancement**

Many people with disabilities oppose enhancement on the ground that it sends out the wrong message – namely that a disabled life is less worth living or that disabled persons are somehow defective. Some proponents of enhancement, however, seem to prefer to draw on disability examples in support of their argument. For instance, it is commonly argued that enhancement in the form of the removal of a minor learning disability can result in a much better life. This is unfortunate for two reasons: first, the argument relies on a clear definition of disability and worsens the fear of disabled people that they are perceived as less valuable or deficient;<sup>67</sup> and second, it distracts from the real question of the benefit of cognitive enhancement by directing attention

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<sup>66</sup> A Solomon, *Far From the Tree: Parents, Children and the Search for Identity* (Scribner 2013) 260.

<sup>67</sup> The definition of disability has been a long-standing topic of controversy. Whilst it is generally accepted that the old medical model should be replaced by a social model of disability, it has also been suggested that there is no coherent social concept of disability: J Harris, 'Is there a Coherent Social Conception of Disability?' (2000) 26 *Journal of Medical Ethics* 95.



towards issues that are primarily of a political rather than an ethical nature.<sup>68</sup> This is exemplified by the debate surrounding ‘Deaf Culture’ and the controversy relating to the use of cochlear implants, which has been criticised for failing to take seriously the evidence from those who experience deafness and for instead relying on prevailing assumptions about what disabled life is like.<sup>69</sup>

This issue extends much further than the narrow question of how we should treat children who are born deaf and concerns the way in which society generally views disability:

The cochlear implant debate is really a holding mechanism for a larger debate about assimilation versus alienation, about the extent to which standardising human populations is a laudable mark of progress, and the extent to which it is a poorly whitewashed eugenics.<sup>70</sup>

To this extent, the argument has been made that pushing parents to opt for cochlear implants in their children is comparable to attempts to eradicate cultural minorities; but this position is difficult to convincingly defend.<sup>71</sup> Nevertheless, the state’s role as an impartial actor in a multicultural society, where Deaf identity is one of many cultural identities, can be questioned if research into cochlear implants (and other disability-removing technologies) is publicly funded.<sup>72</sup> It has been argued that disability should not be understood merely in terms of disadvantages, and that

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<sup>68</sup> By this I mean for instance decisions of resource allocation, which although they clearly entail ethical components, are generally a matter of public policy. In the case of disability, such decisions might involve decisions about who ought to receive disability allowances or other benefits to compensate for a physical, mental or other disadvantage.

<sup>69</sup> R Sparrow, ‘Defending Deaf Culture: The Case of Cochlear Implants’ (2005) 13 *Journal of Political Philosophy* 135.

<sup>70</sup> Solomon (n 66) 112.

<sup>71</sup> Sparrow, ‘Defending Deaf Culture: The Case of Cochlear Implants’ (n 69) 139-41.

<sup>72</sup> *Ibid* 149-52.

disability should even be conserved, because it offers significant cultural and material contributions to the world.<sup>73</sup>

What this demonstrates is how intertwined medical and political issues have become.<sup>74</sup> At one extreme, cognitive enhancement appears less controversial, namely where it serves to provide the capacity to autonomously participate in society.<sup>75</sup> In some very extreme cases, cognitive enhancement might even be required to achieve personhood.<sup>76</sup> Beyond this threshold, however, or even at the other extreme – where cognitive enhancement is used to enhance ‘normal’ persons – moral judgement differs. This is because capacity for autonomy is widely seen as the basis for an independent life, which nobody should deny. Where cognitive enhancement is used to increase average or above-average cognitive abilities, it becomes contentious and raises concerns about justice, fairness and discrimination, albeit mostly unsupported by reliable evidence. The real cause of the unease stems from the difficult relationship we have with intelligence and intellectual abilities.

### **2.2.3 Intellectual abilities**

Intelligence is another controversial topic.<sup>77</sup> Although concerns are usually expressed in terms of the scientific reliability of intelligence measurement, the real worry relates to the social value attached to intelligence.<sup>78</sup> Some critics claim that no such

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<sup>73</sup> R Garland-Thomson, ‘The Case for Conserving Disability’ (2012) 9 *Journal of Bioethical Inquiry* 339.

<sup>74</sup> It has also been argued that the way that disability is addressed by communities can be seen as ‘one of the touchstones of justice in any organised human population’: M Häyry and S Vehmas, ‘Disability as a Test of Justice in a Globalising World’ (2015) 11 *Journal of Global Ethics* 90, 90.

<sup>75</sup> In the sense of avoiding ‘the struggle to be a functioning member of society’: B Saunders, ‘Procreative Beneficence, Intelligence, and the Optimization Problem’ (2015) 40 *Journal of Medicine and Philosophy* 653, 663.

<sup>76</sup> LS Gottfredson, ‘Pretending that Intelligence Doesn’t Matter’ (2000) 2 *Cerebrum* 75. For more detail on the concept of personhood, see J Harris, *The Value of Life: An Introduction to Medical Ethics* (Routledge 1985).

<sup>77</sup> On the controversy surrounding intelligence research, see Tabery (n 61).

<sup>78</sup> D Roberts, ‘Can Research on the Genetics of Intelligence be “Socially Neutral”?’ (2015) 45 *Hastings Center Report* S50.

thing as intelligence exists, and that it is merely a social artefact; however, this theory has been disproven by intelligence researchers:<sup>79</sup>

Is there indeed a general mental ability we commonly call ‘intelligence’ and is it important in the practical affairs of life? The answer, based on decades of intelligence research, is an unequivocal yes. No matter their form or content, tests of mental skills invariably point to the existence of a global factor that permeates all aspects of cognition.<sup>80</sup>

Linda Gottfredson explains that this general intelligence factor, *g*, ‘is not a form of achievement, whether local or renowned. Instead the *g* factor regulates the rate of learning: it greatly affects the rate of return in knowledge to instruction and experience but cannot substitute for either.’<sup>81</sup> The social problems that arise from a misunderstood notion of intelligence as a measurement of a person’s worth, as occurred during the Nazi era, cannot be denied; however, neither can the existence of *g* and its relevance as an explanation for individual differences. The latter matters, for instance, for an understanding of the reasons for variation in the educational outcomes of students within the same environmental setting, which could help to improve the educational provision for all.<sup>82</sup>

An in-depth discussion of the concept of intelligence, including its usefulness and purpose, is beyond the scope of this thesis. Whilst acknowledging that the term itself is likely to spark controversy, further discussion is not relevant to my argument and I propose a morally neutral definition of intelligence for the present purposes. In a

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<sup>79</sup> LS Gottfredson, *The General Intelligence Factor* (Scientific American 1998).

<sup>80</sup> Ibid 24.

<sup>81</sup> Ibid 26.

<sup>82</sup> K Asbury, ‘Can Genetics Research Benefit Educational Interventions for All?’ (2015) 45 Hastings Center Report S39.

healthcare context, there is one important disclaimer to make with regard to intelligence. Although it is frequently assumed that people with learning disabilities are not *healthy*, this is not correct in most cases: these persons merely represent the least able end of the intelligence spectrum. Intelligence as a statistical concept is normally distributed, which means that there are always people at the extreme ends of the Bell curve. Exceptions are the rare statistical outliers, for whom a learning disability is caused by genetic or chromosomal anomalies.<sup>83</sup> Although as *normal* as most of us, we seem to struggle to find appropriate labels to describe people at the lower-end of the scale; common terms include persons with ‘learning disability’, ‘mental retardation’ and ‘intellectual disability’.<sup>84</sup> Louhiala gives good reasons for preferring the latter:

[*M*]ental refers to a broader set of functions than *intellectual*, and most of these people have no disability in many mental functions. Typically, they are fully capable of loving. In addition, no actual retardation takes place with many individuals who have ID [intellectual disability]. If *mental retardation* is too broad, then *learning disability* is perhaps too narrow a concept. These individuals have problems not only in learning but also in a wider set of intellectual functions.<sup>85</sup>

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<sup>83</sup> K Asbury and R Plomin, *G is for Genes: The Impact of Genetics on Education and Achievement* (John Wiley & Sons 2014) 25. Examples of such anomalies include Trisomies 13, 18 and 21, fragile X syndrome, and Phenylketonuria (PKU): Greely (n 50) 117.

<sup>84</sup> This term is now less frequently used, and has already disappeared from the DSM-V; however, it still appears in the current edition of the International Statistical Classification of Diseases and Related Health Problems (ICD): JC Harris, ‘New Terminology for Mental Retardation in DSM-5 and ICD-11’ (2013) 26 *Current Opinion in Psychiatry* 260; *International Statistical Classification of Diseases and Related Health Problems 10th Revision* (World Health Organization 2016).

<sup>85</sup> P Louhiala, ‘Intellectual Disability’ in Richard Ashcroft, Angus Dawson and Heather Draper (eds), *Principles of Health Care Ethics* (2nd edn, John Wiley & Sons. 2007) 463.

For the present purposes, this distinction is useful because it allows for a more nuanced evaluation of cognitive enhancement. Therefore, in the remainder of this thesis, I will refer to the cognitive enhancement of *intellectual abilities*, rather than broader cognitive abilities, although I will use the terms “(general) intelligence”, “cognition”, “cognitive abilities/capacities” and “intellectual abilities” interchangeably.

Given the centrality of the welfare of enhanced children in my thesis, the final key concept in this introductory section concerns the welfare of children.

#### **2.2.4 Welfare of children**

Any conclusion about the moral and legal permissibility of cognitive enhancement in children necessarily involves at least some consideration of the best interests and welfare of the child. The principle of safeguarding the welfare of children is established in both international and national law. Internationally, the United Nations Convention on the Rights of the Child recognises the right of children to have their well-being protected.<sup>86</sup>

In English law, the welfare of the child is an established concept: the Children Act 1989 in section 1(1) defines the child’s welfare as ‘the court’s paramount consideration’ when determining questions about a child’s upbringing.<sup>87</sup> If there are concerns about the welfare of a child, a court is allowed to make a care or supervision order under section 31(2), provided that there is (or is likely to be) significant harm to the child that is attributable to the care given to him/her. For the

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<sup>86</sup> United Nations Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol. 1577.

<sup>87</sup> Children Act 1989 <[www.legislation.gov.uk/ukpga/1989/41/section/1](http://www.legislation.gov.uk/ukpga/1989/41/section/1)> accessed 10 November 2016.

purposes of this section, harm refers to ill-treatment or the impairment of health or development, which includes physical, intellectual, emotional, social or behavioural development and physical or mental health. In *Re O (A Minor) (Care Proceedings: Education)*,<sup>88</sup> it was held that, when deciding whether a child is suffering harm, a comparison must be made with what could be expected of a similar child of the same intellectual and social development. Although for obvious reasons there is not yet any case law to draw upon, this ruling could be interpreted to mean that the relevant threshold to determine what counts as an impairment to development for a cognitively enhanced child could be higher. It could thus be argued that development that is hindered through the inadequate provision of intellectual stimuli would warrant intervention by the court under section 31(2) of the 1989 Act. This idea is developed further in Chapter Seven.

For this thesis, a broader notion of the welfare of the child, going beyond the legal definition, is relevant. From a philosophical perspective, the ethical principles of beneficence and non-maleficence are important, although I do not adopt a purely principled approach to healthcare ethics in this thesis. To avoid confusion with the legal terminology, I use the term “welfare of children” when referring to this broader notion. A detailed analysis of this ethical perspective is provided in Chapter Eight.

The literature review in the preceding section highlighted some of the broader issues that appear in discussions about cognitive enhancement in children. At the heart of my research lies the question of the moral permissibility of such interventions, which I believe has not yet been conclusively answered. The following critical gaps remain.

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<sup>88</sup> *Re O (A Minor) (Care Order: Education: Procedure)* [1992] 4 All ER 905.

## 2.3 Gaps

Overall, the ethical debate over cognitive enhancement in children can be described as fairly comprehensive. Much has been written about the inherent ethical issues, and proposals have been made to address many of the most pressing concerns. However, some important gaps remain, and I intend to address these with my research. Specifically, the following three issues have received insufficient attention.

First, there is a general question around the supposed benefit of cognitive enhancement. Intuitively, we might believe that greater cognitive capacities are beneficial in that they increase well-being, but such an intuition cannot be the sole or deciding factor in reaching moral conclusions about cognitive enhancement in children. The hypothesis must be supported by empirical evidence, where available. If there is none, we should attempt to collect it before proceeding with enhancement interventions with potentially far-reaching consequences for the lives of children and future persons.

Secondly, evaluating the moral permissibility of cognitive enhancement in children is only the first step in producing a full and comprehensive ethical account. Assuming that at least some interventions can be found to be morally unproblematic in at least some circumstances, there remains the question of whether any additional moral responsibilities are attached to a decision to cognitively enhance children. Considering that this intervention would effectively change a child's capacities and likely his/her needs, it seems necessary to determine if this ought to affect the treatment of the enhanced child, versus the unenhanced child.

Finally, more emphasis must be placed on the moral assessment of the ends pursued by cognitive enhancement in children. Ethical permissibility depends on both the means used and the ends pursued: it is not sufficient to claim that a particular

intervention is morally permissible without due consideration of the reasons for and goals of a decision to enhance a child. These can have a much greater impact on the welfare of children than the choice of intervention, and thus cannot be neglected in any thorough ethical analysis.

These issues form the basis of the research questions of this thesis, which I will now briefly outline.

## **2.4 Research questions**

In challenging the common assumption that great intellectual abilities convey significant advantage and urging for proper scrutiny of the relevant empirical evidence, I argue for an approach to cognitive enhancement in children that includes thorough analysis of the respective ends pursued. This involves consideration of the welfare of children and how it is affected by any intervention. Simple reliance on a general notion of well-being or welfare is not sufficient justification; the relevance of well-being in the present context is under-researched. Considering that it is often named as the ultimate goal of enhancement (in general) and cognitive enhancement (in particular), and used as a justification for such interventions, it is unsatisfactory that it remains a fuzzy concept. Some philosophers appear content with the establishment of a normative notion of well-being and do not worry about its usefulness in practical terms. The risk I perceive is that consideration of individual welfare, expressed in subjective terms, is neglected for the sake of potential societal



gain,<sup>89</sup> when there is convincing evidence that the benefit of greater cognitive ability is generally overestimated.

**Research question 1 addresses the welfarist approach as a justification for a moral duty to cognitively enhance children.**

In Chapter Six, I argue that a concept of well-being can only be used as a justification for cognitive enhancement in children if it is adequately defined, and a clear benefit is demonstrated by compelling empirical evidence. This, I claim, applies to all persons equally, regardless of whether their cognitive ability is below average, average or above average. Enhancement of people with a cognitive disability should be treated differently only when the enhancement would lead the person to reach the threshold for capacity.<sup>90</sup>

**Research question 2 looks at why the law is likely to fail cognitively enhanced children by drawing an analogy to gifted children’s status under English education law.**

In Chapter Seven, I challenge the common assumption that high cognitive ability (generally referred to as “giftedness”) is always an advantage for a child. This is important because this misconception seems to inform much of the cognitive enhancement debate, whereas the actual meaning of cognitive enhancement for the individual child is rarely brought up. Provocatively suggesting that some extreme cases of highly cognitively able children might qualify them as disabled, at least

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<sup>89</sup> Such as increased societal productivity. As always, the question of what is morally permissible and what is desirable partly depends on context and might vary from one cultural setting to another. However, unless one lives in a radical communitarian society, where only the well-being of the community matters, it is morally unacceptable to put some abstract concept of society’s well-being before the individual.

<sup>90</sup> Whilst at present there are obvious practical difficulties in determining whether an infant has a cognitive disability, in the future, technology to determine this might become available (e.g. a heel prick test shortly after birth), as might an appropriate intervention to treat such a defect. Furthermore, if the identification of intelligence genes succeeds, prenatal tests might also become available.

under some views of disability, I analyse the current treatment of such children under English education law. This insight is helpful in reflecting on the possible experience of cognitively enhanced children if no environmental changes are made to the present educational system. The reality is that discrimination does not merely affect children at the less able end of the intelligence spectrum, but that assumptions about advantages lead to a general refusal to consider the special needs of the gifted, both in schools and at home. This, I argue, is morally (and legally) unjustified.

**Research question 3 focuses on the assessment of the ends of cognitive enhancement in children, which reach beyond the idea of the child's right to an open future.**

In Chapter Eight, I explain why it is insufficient to evaluate the means for and outcomes of cognitive enhancement in children to reach a moral conclusion about such interventions. Instead, full consideration of the ends pursued is necessary. In doing so, reliance on an open future argument, alone, is not enough, because it cannot fully explain the moral challenges posed by cognitive enhancement of children. By providing several examples, I demonstrate how the welfare of children can be at risk, independent of concerns about an open future.

**Research question 4 concerns the concept of normalcy in the context of diagnoses of psychiatric disorders in children.**

In Chapter Nine, I use the example of pharmacological interventions to illustrate how the concept of normalcy and the medicalisation of certain traits and behaviours in children are used to justify cognitive enhancement. Drawing on the experience of autistics, I demonstrate the special challenges posed by psychiatric disorders to the

common understanding of disability, and how this renders decision-making regarding access to cognitive enhancement interventions particularly challenging.

## CHAPTER 3: Philosophical approach

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In order to defend the moral permissibility of cognitively enhancing children (either before they are born or shortly thereafter), a proper justification must be provided. If a moral obligation to cognitively enhance is claimed, the justification must be even stronger. Different approaches have been taken to provide such a justification, but the one that currently predominates relies on welfare/well-being. This approach stands out because of the intuitive appeal of the claim that something is justified because it increases well-being; such an argument seems plausible and is easy to agree with. Whether there is more to it than this initial appeal requires further exploration.

### 3.1 Well-being

The concept of well-being is important in moral philosophy and is most commonly used to describe what is non-instrumentally good *for* a person. Numerous philosophical theories of well-being exist; the most popular are hedonism, desire theories and objective list theories. A more radical approach is welfarism, which holds that well-being is the only value, and so ‘ultimately speaking, the justificatory force of any moral reason rests on well-being’.<sup>1</sup>

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<sup>1</sup> R Crisp, ‘Well-Being’, Edward N. Zalta (ed), *The Stanford Encyclopedia of Philosophy* (Summer edn, 2013) <<http://plato.stanford.edu/archives/sum2013/entries/well-being>> accessed 10 November 2016.

The welfarist approach defines enhancement as any change in a person ‘which increases the chances of leading a good life in the relevant set of circumstances’.<sup>2</sup> It is worth noting the explicit reference to changes in a person (as opposed to, for example, environments). According to the authors of this definition, it is special because it is inherently normative:

It singles out well-being as one dimension of value that is constitutive of genuine human enhancement. But it leaves open substantive and contentious questions about the nature of well-being, and important empirical questions about the impact of some treatment on well-being.<sup>3</sup>

A key question that arises from this is whether it is possible to defend enhancement on the basis of well-being, in the absence of any substantive concept thereof.<sup>4</sup> Without agreement on what well-being consists of, or at least a broad working definition of it, it seems impossible to apply well-being as a justification for enhancement.

In a comprehensive account of the ethics of well-being, Richard Kraut argues for an approach that is similar to Derek Parfit’s objective list theory, which he refers to as ‘developmentalism’.<sup>5</sup> Introducing a high threshold, Kraut states that: ‘For something to constitute well-being, entirely or partly, it must be noninstrumentally valuable (though it can be both such a constituent and *also* instrumentally valuable.’<sup>6</sup> According to developmentalism, something is *good* for someone when it contributes to flourishing; this is the case whenever something ‘consists in the maturation and

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<sup>2</sup> J Savulescu, A Sandberg and G Kahane, ‘Well-Being and Enhancement’ in Julian Savulescu, Ruud Ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011) 7.

<sup>3</sup> Ibid.

<sup>4</sup> R Sparrow, ‘A Not-So-New Eugenics’ (2011) 41 *Hastings Center Report* 32, 34.

<sup>5</sup> R Kraut, *What Is Good and Why: The Ethics of Well-Being* (Paperback edn, Harvard University Press 2009) 141.

<sup>6</sup> Ibid 6.

exercise of certain cognitive, social, affective, and physical skills'.<sup>7</sup> In this regard, developmentalism can be said to combine objectivity with subjectivity, because it necessarily requires an answer to the question of 'who is it good for', and does not stop at the point at which something is 'good'.<sup>8</sup>

One of the strengths of Kraut's approach is that it does not display the same deficiencies as many other theories of well-being. For instance, the hedonistic approach, which equates pleasure with good, appears rather simplistic, because it fails to adequately link *good* to a subject, in the sense of *good for someone*.<sup>9</sup> The failure to establish such a link between what is good and a corresponding subject for whom it is good, is what I perceive to be the biggest weakness in the welfarist approach, described above. Practical questions, as present in the context of cognitive enhancement in children, cannot be answered by relying on a purely normative notion of enhancement and an objective concept of well-being, but require consideration of the actual welfare of enhanced children.

With regard to the specific issue of cognitive enhancement, the following additional points arise.

First, it is not possible to separate intellect from the person, because these are one and the same.<sup>10</sup> What we are interested in, what we enjoy doing and what plans we make are all influenced by our intellect and our cognitive capacities. If we encounter opportunities that match these capacities, we can be said to flourish, in Kraut's sense.

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<sup>7</sup> Ibid 141.

<sup>8</sup> This is similar to the argument put forth in Aristotle, *The Nicomachean Ethics* (W. D. Ross and Lesley Brown trs, Oxford University Press 2009). See full text for a complete account of Aristotle's conception of well-being.

<sup>9</sup> Kraut uses the example of excessive masturbation leaving little time to engage in other activities, to demonstrate that not all things that give pleasure are also good for a person. Kraut (n 5) 170.

<sup>10</sup> This is not to invoke the notion of identity, which I acknowledge as the source of many divergent views. A brief overview is given in section 3.3.

However, if our cognitive abilities are enhanced, our flourishing depends on our opportunities to develop and exercise those enhanced cognitive skills. This means that unless an opportunity for such development and exercise is provided, the cognitive enhancement enterprise appears not only futile, but also morally problematic. This is comparable to screening for a disease for which there is no treatment: it has no added value for the individual in terms of revealing an appropriate course of action; in fact, it might actually cause harm and is thus seemingly a waste of public resources.<sup>11</sup> In *Flowers for Algernon*, the mentally impaired main character Charlie undergoes brain surgery. This succeeds in making him smart beyond imagination, but he finds himself struggling with social interactions that he had previously found interesting, remarking that he finds ‘no pleasure in discussing ideas any more on such an elementary level’.<sup>12</sup> Although this is a fictional example, it illustrates the point that well-being and flourishing are necessarily relative to a person’s cognitive capacities. This suggests that an increase in such capacities would likely require a corresponding adjustment in the exercise of such capacities. If this is correct, it raises the question of what is really gained by cognitive enhancement in terms of subjective well-being.

This leads to the second point. Enhancement would seem to contribute to flourishing only if certain cognitive, social, physical and affective skills are absent or unable to be exercised. An example of a person who could be said to experience greater flourishing as a result of enhancement would be a person on the autistic spectrum who struggles to read and interpret facial expressions; this person might experience

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<sup>11</sup> That is, unless an argument about the value for medical research purposes – such as the discovery of prevalence rates of certain diseases – is made. It is not clear, however, that the balance would tip in favour of such research over the individual’s interest in remaining ignorant when no treatment is available. On the broader ethical issues related to screening, see D Shickle and R Chadwick, ‘The Ethics of Screening: Is “Screeningitis” an Incurable Disease?’ (1994) 20 *Journal of Medical Ethics* 12.

<sup>12</sup> D Keyes, *Flowers for Algernon* (Harcourt 1966).

an improvement in well-being if he/she were to gain this capacity through enhancement.<sup>13</sup> Beyond this introduction of a new and desired capacity, however, any further increase in skills would appear to have diminishing marginal utility, adding little or nothing to the person's subjective well-being. In order to prove this point, we must draw on empirical evidence; if data is not forthcoming, the claim that cognitive enhancement leads to a better life because it provides access to further objective goods that require sophisticated cognition must be questionable.<sup>14</sup>

Third, despite the lack of evidence that one's level of cognitive ability has a great role to play in well-being, attempts are often made to apply statistical data to a range of factors, such as income, life expectancy and education, in order to defend the claim that greater cognition is advantageous. The United Nations Development Programme's Human Development Index (HDI), for instance, takes into account life expectancy, years of education and standard of living as measured by gross national income (GNI) per capita to compare countries.<sup>15</sup> This metric is often criticised as being primarily concerned with the interest of states, governments and larger communities, rather than individuals. On an individual view, it is frequently contended that more intelligent people lead longer lives and earn above average incomes. Whilst this might be a statistical truth,<sup>16</sup> questions of causality are insufficiently addressed and the meaning of the correlation tends to be overestimated. The previously mentioned example of the role of nutrition in the relationship

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<sup>13</sup> It is important to note that this might only be experienced as an improvement if there are no compensating losses; that is, when there is no other valued capacity that is negatively impacted by the enhancement. Furthermore, there may be persons on the autistic spectrum who would not perceive this as an improvement, because they endorse their autism as an identity rather than a disability. This dilemma is discussed in Chapter Nine.

<sup>14</sup> This claim is made by Savulescu, Sandberg and Kahane, 'Well-Being and Enhancement' (n 2) 10.

<sup>15</sup> Detailed information about the HDI can be found at the UNDP website: <<http://hdr.undp.org/en/statistics/understanding/indices>> accessed 10 November 2016.

<sup>16</sup> United Nations Development Programme, *Human Development Report 2015: Work for Human Development* (2015) <[http://hdr.undp.org/sites/default/files/2015\\_human\\_development\\_report.pdf](http://hdr.undp.org/sites/default/files/2015_human_development_report.pdf)> accessed 10 November 2016).



between health and intelligence highlights the importance of carefully evaluating evidence rather than simply assuming causality. Similarly, the positive correlation between income and subjective well-being is different from what is often assumed, in that it works in the opposite direction: higher subjective well-being tends to lead to higher income, not the other way round.<sup>17</sup> Thus, it has not been established that income and life expectancy are constitutive of well-being, though they are undoubtedly instrumentally valuable.<sup>18</sup>

As an alternative to the narrow economic indices that are used, Nobel prize-winning economist-philosopher Amartya Sen developed the capability approach, which is more encompassing in its evaluation of well-being. Sen first introduced this conceptual framework in 1979 and has continuously elaborated on it since that time.<sup>19</sup> Its defining feature is its focus on the moral significance of individuals' capacity to achieve the kind of life they have reason to value. This capacity to live a good life is defined by a number of 'functionings' and 'capabilities':<sup>20</sup> functionings are states of 'being and doing', such as being well-nourished and having shelter, while capabilities are functionings that a person can effectively access – in the sense of having the freedom or opportunity to achieve them.<sup>21</sup> This latter point highlights

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<sup>17</sup> E Diener and R Biswas-Diener, 'Will Money Increase Subjective Well-being?' (2002) 57 *Social Indicators Research* 119. The impact of income level on subjective happiness has been shown to be marginal beyond the threshold of meeting basic needs: DG Myers and E Diener, 'Who is Happy?' (1995) 6 *Psychological Science* 10.

<sup>18</sup> As a side note, even if it could be said that increased wealth and income should be promoted through cognitive enhancement, this remains an economic impossibility because financial resources are limited and therefore not everybody can be rich. Wealth thus remains a positional good, in that the advantage of some implies a disadvantage of others; to defend such a view would appear ethically questionable. The potential effect of enhancement on economic development is discussed in A Buchanan, 'Enhancement and the Ethics of Development' (2008) 18 *Kennedy Institute of Ethics Journal* 1.

<sup>19</sup> A Sen, 'Equality of What?' (The Tanner Lecture on Human Values, Stanford University, 22 May 1979)

<sup>20</sup> A Sen, *Development as Freedom* (Oxford Paperbacks 2001) 75.

<sup>21</sup> For a detailed overview of the capability approach and the way in which it has developed, see I Robeyns, 'The Capability Approach', Edward N. Zalta (ed), *The Stanford Encyclopedia of Philosophy*

the importance of freedom for Sen. In contrast, Martha Nussbaum, who has extensively developed the capability approach, stresses human dignity as an underlying concept. She has come up with a list of ten ‘Central Capabilities’<sup>22</sup> and maintains that every person is entitled to a minimum threshold level of each of these capabilities.<sup>23</sup> Despite its wide recognition, the capability approach, as a normative concept, has also been criticised for its vagueness in practical terms. For instance, it has been argued that Nussbaum’s central capabilities are useful for understanding the origin of disability rights, but fail to assist in important prioritising decisions.<sup>24</sup>

Finally, there is the question of quantification with regard to cognitive enhancement. Not least for pragmatic reasons and to safeguard economic efficiency, it is necessary to define some level of cognitive ability that is deemed adequate. A potluck attempt at enhancing children in the hope that they will end up somewhat *better off* would be an unethical waste of resources. In terms of resource allocation, it seems obvious that providing short-sighted persons with eyeglasses in order to correct their vision and enable them to see sufficiently clearly to manage their lives independently should take priority over providing super-glasses with X-ray vision capabilities to those (few) who desire it. A morally relevant way of quantifying our enhancement efforts is needed in order to justify them, since the treatment/enhancement distinction, as discussed above, has failed us.

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(Winter edn, 2016) <<http://plato.stanford.edu/archives/win2016/entries/capability-approach/>> accessed 10 November 2016.

<sup>22</sup> MC Nussbaum, *Creating Capabilities: The Human Development Approach* (Belknap Press of Harvard University Press 2011) 33-34.

<sup>23</sup> Ibid 40.

<sup>24</sup> C Harnacke, ‘Disability and Capability: Exploring the Usefulness of Martha Nussbaum’s Capabilities Approach for the UN Disability Rights Convention’ (2013) 41 *The Journal of Law, Medicine & Ethics* 768.

In summary, the key ethical issues that arise in the present context relate to the meaning and importance of well-being – including the relationship between capacities and opportunities to exercise these capacities (*flourishing*) and the link between greater cognitive capacities and subjective well-being – and the quantification of an appropriate level of cognitive ability. To provide the comprehensive ethical analysis of cognitive enhancement in children that is the aim of this thesis, I argue that it is necessary to complement the theoretical evaluation and arguments with relevant empirical evidence, where possible.

### **3.2 Empirical evidence**

Drawing on empirical evidence is important in two regards: first, it provides a check on whether the right questions are being asked by closely relating philosophical deliberations to real life scenarios, and thus ensures that any moral conclusions are not useless in practical terms and that they do not lead to undesirable moral consequences. Second, as indicated above, the topic of cognitive enhancement in children is one in which many moral intuitions come into play, and these must be thoroughly scrutinised for validity. Empirical data can help with this task in providing the necessary support for the acceptance or dismissal of assumptions.

I acknowledge that there is an entire field of empirical ethics dedicated to the role of empirical research in ethical discourse.<sup>25</sup> However, in-depth coverage of this field is

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<sup>25</sup> For a defence of the importance of cooperation between social sciences and applied ethics, see D Birnbacher, 'Ethics and Social Science: Which Kind of Co-operation?' (1999) 4 *Ethical Theory and Moral Practice* 319. See also M Dunn and others, 'Toward Methodological Innovation in Empirical Ethics Eesearch' (2012) 21 *Cambridge Quarterly of Healthcare Ethics* 466, who argue that a narrow account of empirical ethics research can be justified but that in order to do so innovative methodological practices are required.

beyond the scope of my research, and I will not enter into the debate beyond expressing general agreement with Dieter Birnbacher, who argues that:

not only applied ethics but even certain parts of general ethics have to incorporate sociological and psychological data and theories from the start. Applied ethics depends on social science in order to assess the impact of its own principles on the concrete realities which these principles are to regulate as well as in order to propose practice rules suited to adapt these principles to their respective contexts of application.<sup>26</sup>

This is precisely the role of empirical evidence in this thesis: to provide a check on working assumptions and conclusions within the larger theoretical debate.<sup>27</sup>

Finally, a further important philosophical issue deserves at least a short mention – namely that of identity.

### **3.3 Personal identity**

There is extensive philosophical literature on the topic of personal identity, and a full analysis of this is beyond the scope of this thesis.<sup>28</sup> For the present purposes, I only consider one narrow aspect of personal identity, as it is frequently raised in discussions of cognitive enhancement: the idea that changing the cognitive capacities of a child affects his/her identity and therefore constitutes harm. This is the kind of argument that Jürgen Habermas makes when he expresses concern for the enhanced

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<sup>26</sup> Birnbacher (n 25) 319.

<sup>27</sup> See also R Bennett and A Cribb, 'The Relevance of Empirical Research to Bioethics: Reviewing the Debate' in Matti Häyry and Tuija Takala (eds), *Scratching the Surface of Bioethics* (Rodopi 2003) for a review of the debate regarding the importance of empirical research to bioethics.

<sup>28</sup> For an introduction to the topic and an overview of the key issues, see ET Olson, 'Personal Identity', Edward N. Zalta (ed), *The Stanford Encyclopedia of Philosophy* (Spring edn, 2016) <<http://plato.stanford.edu/archives/spr2016/entries/identity-personal/>> accessed 10 November 2016.

child's loss of 'sole authorship' over his/her life.<sup>29</sup> The argument raises two questions: first, there is the empirical question of whether cognitive enhancement can be said to be identity-affecting; and second, if the preceding question is answered in the affirmative, can this be said to constitute a harm? This is a broader philosophical question relating to the notion of personal harm and potentially leading to a non-identity problem. I will now briefly address these two questions, in turn.

With regard to the empirical question, it seems that whether or not cognitive enhancement can be seen to be identity-affecting largely depends on the specifics of the intervention employed. In the absence of suitably effective enhancement methods, this is still somewhat speculative, but it is likely that at least some possible technologies could be said to affect identity, albeit in different ways.<sup>30</sup> Interventions such as gene therapy and pharmacology,<sup>31</sup> which are already being practiced, could be said to alter a child's identity by fundamentally changing the brain functioning in already existing children. Similarly, gene editing technology could have a comparable effect, as it would be applied pre-natally to change the genetic make-up of a yet-to-be-born child. To further complicate matters, however, it is also possible that enhancement technologies will not only lead to changes in existing persons, but will also lead to the creation of entirely different persons. For example, gamete or embryo selection could be used, and presumably extensive genetic alterations to embryos could be so significant that the resulting person would be sufficiently

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<sup>29</sup> J Habermas, *The Future of Human Nature* (Polity 2003) 82.

<sup>30</sup> The basic idea underlying this claim is that an increase in cognitive abilities is likely to change personality: 'Increased memory, new insights and better reasoning could all lead to new values, new perspectives on one's relationships, and new sources of pleasure and irritation.' PJ Whitehouse and others, 'Enhancing Cognition in the Intellectually Intact' (1997) 27 *Hastings Center Report* 14, 16.

<sup>31</sup> Sparrow (n 4) 42.

dissimilar from the original to constitute a completely different person.<sup>32</sup> Advances in genetics and genetic technologies are increasingly affecting the way in which personal identity is perceived.<sup>33</sup>

This leads to the second question, because – depending on whether or not enhancement can be said to be identity-changing – the argument of harm becomes difficult to make. When a different person is created as a result of an intervention (e.g. when a different embryo is selected for implantation), a ‘non-identity problem’ arises. Derek Parfit introduced this term when he described the philosophical challenge of describing harms to future generations, which he perceives as the most important aspect of moral theory.<sup>34</sup> In essence, the problem arises when a harm cannot be related to a specific person, because the resulting person is not the same as the person who would have existed without the intervention; in other words, when the intervention results in a different person. A comparison and moral assessment of the welfare a child might have experienced is thus impossible, because the child could not have been born in alternative circumstances.<sup>35</sup> Consequently, any harm associated with the action cannot be said to be person-related, and must therefore be framed differently. Parfit himself proposes several solutions to this dilemma, from simply accepting that no harm has in fact been caused to using an impersonal account of harm. None of these solutions is deemed fully satisfactory, and so the philosophical question of how a person-based intuition of harm should be addressed is only partially answered.<sup>36</sup> The relevance of these personal identity issues has also

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<sup>32</sup> This is the idea of a genetic threshold: for example, if more than 50 per cent of genes are changed in an embryo, whether by addition, removal or alteration, the resulting embryo can no longer be regarded as the same as the original.

<sup>33</sup> R Chadwick, ‘Personal Identity: Genetics and Determinism’ [2003] eLS.

<sup>34</sup> D Parfit, *Reasons and Persons* (Oxford University Press 1984) 351-90, 351.

<sup>35</sup> G Pennings, ‘Measuring the Welfare of the Child: In Search of the Appropriate Evaluation Principle’ (1999) 14 *Human Reproduction* 1146, 1146.

<sup>36</sup> For a full account of the non-identity problem and future generations, see Parfit (n 34) 351-80.

been called into question. John Harris, for instance, argues that ‘while the personal identity issues are fun philosophically, they don’t seem, to me at least, to have any ethical impact at all. Indeed, such puzzles seem to be a gross form of philosophical indulgence at the expense of moral decency.’<sup>37</sup>

For the purposes of this thesis, it is sufficient to conclude at this stage that one’s view of personal identity and the person-centredness of harm affects one’s understanding of the type of harm that could potentially be caused by cognitive enhancement. However, there are important logical problems with this type of argument and the legitimacy of ‘grievances’;<sup>38</sup> these are discussed further in Chapter Eight.

Having outlined the philosophical approach in my research, I now turn to the legal approaches.

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<sup>37</sup> J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007) 180.

<sup>38</sup> R Chadwick, ‘Gene Therapy’ in Helga Kuhse and Peter Singer (eds), *A Companion to Bioethics* (Blackwell Publishing 1998).

## CHAPTER 4: Legal approaches

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The “creation” of children with greater cognitive abilities by way of enhancement could give rise to several legal challenges. A general but important point concerns the role of the state in matters relating to children. This role is twofold: First, through the provision and regulation of access to assisted reproduction services, the state directly intervenes in something that was traditionally a private matter; reproduction has thus become the subject of policy and is increasingly moved into the public sphere.<sup>1</sup> In this way, the state can be said to influence – at least partially – which children are born, and to whom.<sup>2</sup> As will be made clear, this influence will grow as enhancement and reproductive technologies develop. Second, it is the state’s responsibility to protect children’s best interests, to shield them from harm caused by detrimental parental decisions and to safeguard their future autonomy by putting limits on parental authority. The example of educational responsibilities towards children is covered in Chapter Seven. The precise way in which the state meets its obligations affects not only future children, but society at large.<sup>3</sup> In this latter regard, the state has its own interest in the outcome of children’s lives, because society’s productivity and composition impacts on the state’s operation. The role is thus not a neutral one, and this must be borne in mind when reflecting on the ethics of cognitive enhancement in children.

Following this general point, I now outline the key legal issues that will be explored in more detail in Chapter Seven.

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<sup>1</sup> R Chadwick, ‘Having Children’ in Ruth F Chadwick (ed), *Ethics, Reproduction and Genetic Control* (Revised edn, Routledge 2001) 39.

<sup>2</sup> M Brazier, ‘Regulating the Reproduction Business?’ (1999) 7 *Medical Law Review* 166.

<sup>3</sup> R Chadwick (ed) *Ethics, Reproduction and Genetic Control* (Revised edn, Routledge 2001) xii.



## 4.1 Treatment of embryos

In Chapter Two, I explained that the biomedical technologies that are most likely to be employed in cognitive enhancement are accompanied by important ethical challenges.<sup>4</sup> As these challenges are not specific to enhancement but apply equally when such technologies are used for medical purposes,<sup>5</sup> they are beyond the scope of this thesis and are not addressed in any detail. There are, however, a number of legal issues that arise from these technologies in the context of biomedical enhancement.

First, issues relating to the treatment of embryos, as regulated by the Human Fertilisation and Embryology Acts,<sup>6</sup> might arise. This is already the case with PGD and IVF, and it is likely that at least some of the prospective cognitive enhancement technologies will involve interventions in embryos – either through established procedures such as PGD and IVF or through genetic engineering.<sup>7</sup> The genetic foundation of cognition means that changes at the genetic level are likely to be most promising in enhancing cognitive ability. Under current English law, any intervention in embryos must be carried out in a licenced clinic that is governed by the Human Fertilisation and Embryology Authority (HFEA). Certain important restrictions apply, such as the rule that embryos must not be kept or used by the

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<sup>4</sup> For an example of the ethical challenges posed by preimplantation genetic diagnosis, which is a method that is likely to be used for enhancement, see H Draper and R Chadwick, 'Beware! Preimplantation Genetic Diagnosis May Solve Some Old Problems But It Also Raises New Ones' (1999) 25 *Journal of Medical Ethics* 114.

<sup>5</sup> If such a distinction can be made. See Section 2.2.1.

<sup>6</sup> Human Fertilisation and Embryology Act 1990 <[www.legislation.gov.uk/ukpga/1990/37/contents](http://www.legislation.gov.uk/ukpga/1990/37/contents)>; Human Fertilisation and Embryology Act 2008 <[www.legislation.gov.uk/ukpga/2008/22/contents](http://www.legislation.gov.uk/ukpga/2008/22/contents)> both accessed 10 November 2016.

<sup>7</sup> I use the term "genetic engineering" in broadly, to encompass current technologies such as gene editing as well as future genetic technologies.

clinic beyond a 14-day limit,<sup>8</sup> which is currently being challenged with scientists seeking to raise the limit to 28 days.<sup>9</sup> In addition, clinics need to comply with section 13(5) of the 1990 Act, as amended by section 14(2)(b) of the 2008 Act, which states that:

A woman shall not be provided with treatment services unless account has been taken of the welfare of any child who may be born as a result of the treatment (including the need of that child for supportive parenting), and of any other child who may be affected by the birth.

Failure to comply leads to a loss of licence. More importantly, however, if there were clear disbenefits of cognitive enhancement, it would seem unlikely that licences would ever be granted for such interventions, at least if section 13(5) were to be applied substantially. This section has however attracted significant criticism, as will be discussed next.

As the law currently stands, some probable methods of genetic enhancement are prohibited. Under section 3ZA of the 1990 Act, it is illegal to implant an embryo with altered DNA or to add cells to an embryo, and section 4 prohibits the use of non-human material or the implantation of non-human embryos. This leaves the possibility of embryo selection, which might already be occurring (for instance by screening out fragile X syndrome embryos through PGD, during IVF). Due to the

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<sup>8</sup> This was the result of the Warnock committee's report: UK Department of Health and Social Security, *Report of the Committee of Inquiry into Human Fertilisation and Embryology* (1984). It has since been incorporated into section 3 of the HFEA Act 1990 (as amended). Recently, scientists and philosophers have called for the rule to be revisited: I Hyun, A Wilkerson and J Johnston, 'Embryology Policy: Revisit the 14-Day Rule' (2016) 533 *Nature* 169; J Harris, 'It's Time to Extend the 14-Day Limit for Embryo Research' (*The Guardian*, 6 May 2016) <[www.theguardian.com/commentisfree/2016/may/06/extend-14-day-limit-embryo-research](http://www.theguardian.com/commentisfree/2016/may/06/extend-14-day-limit-embryo-research)> accessed 10 November 2016.

<sup>9</sup> This matter was recently discussed at the annual Progress Educational Trust conference, where the proposal was made to extend the current legal limit on embryo research: 'Rethinking the Ethics of Embryo Research: Genome Editing, 14 Days and Beyond' (Progress Educational Trust, London, 7 December 2016).

high costs, risks and discomfort of IVF, this procedure is most often used by people experiencing fertility problems. Some remain convinced, however, that as genetic technologies improve, a large proportion of human reproduction will occur in this way.<sup>10</sup> Although I do not fully agree with this view, the possibility that there might be an increased use of PGD and IVF technologies for purposes other than the avoidance of serious genetic and chromosomal defects means that it is not too soon to be thinking about the regulation of such endeavours.<sup>11</sup>

Within this thesis, I assume the legitimacy of using human embryos. This is not to dismiss lightly the legal and ethical issues that arise from research and technologies involving stem cells, human tissue and DNA, and human embryos.<sup>12</sup> Rather, it is an acknowledgment that these issues deserve their own thorough assessment, for which unfortunately there is insufficient space in this thesis.

## **4.2 Welfare of the child**

The second issue relates to actual children, rather than embryos, and is arguably the most important issue in the present context. I do not suggest that it is possible to completely separate the two issues, since the created child was once the enhanced embryo, but I want to emphasise that this section is concerned with the welfare of the *future* child who must live with the consequences of any cognitive enhancement.

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<sup>10</sup> See HT Greely, *The End of Sex and the Future of Human Reproduction* (Harvard University Press 2016) for a comprehensive account of this possibility, including an overview of the underlying science. It is also worth noting that otherwise fertile couples already use IVF to avoid conceiving a child with an inheritable genetic disease.

<sup>11</sup> Greely explicitly refers to the increasing options for selecting for certain non-disease traits: *ibid.*, 140. Whether potential parents will be willing to do this at the cost of reproducing naturally in the absence of a medical need for assisted reproduction technology remains to be seen.

<sup>12</sup> For a comprehensive overview of issues arising in the context of reproduction, see J Harris and S Holm (eds), *The Future of Human Reproduction: Ethics, Choice, and Regulation* (Clarendon Press 1998).

The welfare of children is of great concern, both legally and ethically.<sup>13</sup> As we have just seen, English law, in section 1 of the Children Act 1989, defines the welfare of the child as the paramount consideration. This ‘welfare principle’ has attracted much criticism, and continues to do so. For one, it can be seen as impractical, because theoretically the court must establish what is truly in the best interest of the child. At best, this is time and resource consuming; at worst, it is impossible, because of a lack of consensus over what promotes children’s welfare and the practical difficulty of reliably estimating the effect of actions on a child’s future.<sup>14</sup> In addition, the principle is easily misused in practice, because in the absence of actual knowledge about what is in a child’s best interests, the ‘courts have been able to smuggle the interests of parents into the calculation’.<sup>15</sup> It has also been critiqued as being contrary to the Human Rights Act 1998 (HRA), specifically as an infringement of the rights presented in Article 8 and Article 12 to respect for private and family life and to marry (and found a family).<sup>16</sup> Consequently, Choudhry and Herring advocate a human rights approach, which they consider preferable, because it:

enables the court to specifically consider the rights of parents. In particular, it allows transparent assessment of the interests of each family member without the need for unsupportable assumptions that identify the interests of one parent with the welfare of the child.<sup>17</sup>

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<sup>13</sup> This is a fairly recent development: ‘A hundred years ago, children were effectively property, and you could do almost anything to them short of killing them.’ A Solomon, *Far From the Tree: Parents, Children and the Search for Identity* (Scribner 2013) 103.

<sup>14</sup> One of the main criticisms of the principle is this indeterminacy, which ‘has allowed other policies and principles to smuggle themselves into children’s cases’: H Reece, ‘The Paramountcy Principle: Consensus of Construct?’ (1996) 49 *Current Legal Problems* 267, 268.

<sup>15</sup> S Choudhry and J Herring, *European Human Rights and Family Law* (Hart 2010) 110.

<sup>16</sup> Human Rights Act 1998 <[www.legislation.gov.uk/ukpga/1998/42/schedule/1](http://www.legislation.gov.uk/ukpga/1998/42/schedule/1)> accessed 10 November 2016.

<sup>17</sup> Choudhry and Herring (n 15).

The issue of a potential conflict between the welfare principle and a human rights approach under the Human Rights Act 1998 is complex and beyond the scope of this thesis. However, as Choudhry and Herring argue, following the HRA, the courts ‘might have no alternative but to use human rights analysis in family law cases under English law’.<sup>18</sup>

The crucial question that must be addressed in the current context is why there is a difference between actions taken for embryo A (who will become child A) and actions taken for an infant B under the age of one (who will also become child B).<sup>19</sup>

Due to concerns for the welfare of the child, section 13(5) might be used to prevent the existence of child A and this might be considered a violation of the intending parent(s)’ right to procreate;<sup>20</sup> but this would leave the situation unchanged for child B, who would be facing the same benefits and harms from any attempt at enhancement as child A.<sup>21</sup> If what really matters is the welfare of the child, this differential treatment with regard to access to reproductive technologies requires justification. Margaret Brazier describes the assessment of welfare in this context as a ‘farce’, recommending as alternatives either complete equality of access when medically feasible or a clear policy decision as to which groups are entitled to access.<sup>22</sup> Similarly, Emily Jackson claims that an extension of the welfare principle to decisions taken prior to a child’s conception is ‘unjust, meaningless and

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<sup>18</sup> Ibid 98.

<sup>19</sup> The age of one has been arbitrarily drawn and is just meant to provide a fairly realistic working example of a legal limit. At this age, infants can still be safely assumed to lack capacity for autonomous decision-making, but as the brain has not yet fully developed, it is likely that cognitive enhancement interventions are still possible (albeit probably less successful than when performed prenatally).

<sup>20</sup> Michael Parker argues that this section effectively gives ‘health professionals a veto over the wishes of would-be parents’, where licensed treatment is concerned: M Parker, ‘The Welfare of the Child’ (2005) 8 *Human Fertility* 13, 13.

<sup>21</sup> This assumes that the procedure itself was perfectly safe and that there were no additional risks for the embryo.

<sup>22</sup> Brazier (n 2) 178.

inconsistent with existing legal principle', and has argued for a removal of section 13(5) from the 1990 Act.<sup>23</sup>

### **4.3 Parental responsibility**

Following from this is the third issue – namely parental responsibility. Section 3 of the Children Act 1989 defines this as all the rights, duties, powers, responsibilities and authority that, by law, a parent has in relation to his/her child and the child's property. As Jonathan Herring notes, the concept lacks a consistent meaning, with courts and commentators struggling to explain the term – particularly the extent to which parental responsibility actually gives a parent rights of any practical significance.<sup>24</sup>

Various other legal acts are relevant in this context, such as the Children Act 2004 and the Education Act 2002, in addition to the Children and Young Persons Act 1933, which, in section 1, makes mistreatment of children an offence. Mistreatment includes wilful assaults, ill-treatment, neglect, abandonment and exposure to unnecessary suffering or injury to health.<sup>25</sup> Following discussions about emotional cruelty, a 'Cinderella law' was proposed in the Serious Crime Bill 2014, which led to the recent enactment of the Serious Crime Act 2015. This Act amended the 1933 Act to explicitly include psychological suffering.<sup>26</sup> In the present context, this could be interpreted as applying to the potential suffering caused to cognitively enhanced

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<sup>23</sup> E Jackson, 'Conception and the Irrelevance of the Welfare Principle' (2002) 65 *Modern Law Review* 176.

<sup>24</sup> J Herring, *Family Law: Issues, Debates, Policy* (Routledge 2001) 133-36.

<sup>25</sup> Children and Young Persons Act 1933 <[www.legislation.gov.uk/ukpga/Geo5/23-24/12](http://www.legislation.gov.uk/ukpga/Geo5/23-24/12)> accessed 10 November 2016.

<sup>26</sup> "Cinderella" emotional cruelty law considered' (*BBC News*, 31 March 2014) <[www.bbc.com/news/uk-26814427](http://www.bbc.com/news/uk-26814427)> accessed 10 November 2016. The Serious Crime Bill 2014 has since been enacted.

children by a failure to provide them with sufficiently intellectual stimulation – an idea that will be explored further in Chapter Seven.

Given that parents are legally (and morally) responsible for the welfare of their children, in the present context the question arises whether any additional needs a child may have as a result of being enhanced at the wishes of his/her parent(s) might give rise to a corresponding parental duty to address those needs. In light of recent discussions around expanding English criminal law to include emotional neglect of a child, an argument could be made that enhancing children to make them more intellectually capable would require parents to adequately “feed” them intellectually in order to avoid a charge of neglect. This might appear far-fetched, but the head of Ofsted, Sir Michael Wilshaw, has recently called for the authority to fine parents who do not read to their children.<sup>27</sup> There are obvious flaws in this suggestion, not least the impracticality of enforcing it, but the argument for such a fine would appear stronger in cases where parents deliberately “create” cognitively enhanced children and fail them in this way. Unless legislative changes are made to this effect, the courts’ decisions to date would suggest that current legislation would likely not be interpreted in such a way. The law does little to directly intervene with harmful parenting choices, unless a child is suffering significant harm to justify state intervention; and, as Herring points out, ‘the courts have suggested that legal procedures should not be used to resolve day-to-day issues relating to children’.<sup>28</sup>

The final point in discussing the legal approach relates to disability. I addressed the issue from a philosophical perspective in Chapter Two, but, given the importance of

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<sup>27</sup> ‘Schools should Fine “Bad Parents”, says Ofsted Chief’, *Guardian* (17 June 2016) <[www.theguardian.com/education/2014/jun/17/schools-fine-parents-ofsted-michael-wilshaw](http://www.theguardian.com/education/2014/jun/17/schools-fine-parents-ofsted-michael-wilshaw)> accessed 10 November 2016.

<sup>28</sup> Herring (n 24) 148.

disability for the argument advanced in this thesis, the legal perspective must also be considered.

#### **4.4 Disability**

The emergence of cognitively enhanced children could pose a challenge to the current legal definition of disability, which is one of the main issues considered in this thesis because it has not been adequately addressed in the literature to date. In Chapter Seven, I give a comprehensive explanation of how great cognitive capacities could be seen to fall under the current definition of disability, and this idea also bears on future cognitively enhanced children.

In terms of the law, the principal instrument regulating disability is the Equality Act 2010, which, in section 1, states that:

- (1) A person (P) has a disability if—
  - (a) P has a physical or mental impairment, and
  - (b) the impairment has a substantial and long-term adverse effect on P's ability to carry out normal day-to-day activities.<sup>29</sup>

Currently, the Act does not require a disability to be a recognised medical condition or to be included in the DSM-V or ICD-10 manuals. Instead, the Act only specifies some general criteria to determine whether a person has a disability – specifically that the condition is an impairment that is both long-term and affects everyday life. Learning disabilities clearly qualify under this Act, and special provision is thus

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<sup>29</sup> Equality Act 2010, s 6(1) <[www.legislation.gov.uk/ukpga/2010/15/section/6](http://www.legislation.gov.uk/ukpga/2010/15/section/6)> accessed 10 November 2016.



made for children's special educational needs. For the purposes of the law, 'special education needs' has a somewhat broader definition than learning disabilities. Section 312 of the Education Act 1996 states that:

(1) A child has 'special educational needs' for the purposes of this Act if he has a learning difficulty which calls for special educational provision to be made for him.

(2) Subject to subsection (3) (and except for the purposes of section 15A or 15B) a child has a 'learning difficulty' for the purposes of this Act if—

(a) he has a significantly greater difficulty in learning than the majority of children of his age,

(b) he has a disability which either prevents or hinders him from making use of educational facilities of a kind generally provided for children of his age in schools within the area of the local education authority, or

(c) he is under compulsory school age and is, or would be if special educational provision were not made for him, likely to fall within paragraph (a) or (b) when of that age.<sup>30</sup>

It is worth noting that there is no mention of highly gifted children in the Act, although there is increasing evidence that the most intellectually able pupils often receive inadequate education due to their special learning needs.<sup>31</sup> Neville Harris notes that '[i]n recent years "gifted and talented" pupils have attracted promises of

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<sup>30</sup> Education Act 1996, s 312 [www.legislation.gov.uk/ukpga/1996/56/section/312](http://www.legislation.gov.uk/ukpga/1996/56/section/312)> accessed 10 November 2016. This is almost identical to the provision in s 20 of the Children and Families Act 2014 <[www.legislation.gov.uk/ukpga/2014/6/enacted](http://www.legislation.gov.uk/ukpga/2014/6/enacted)> accessed 10 November 2016.

<sup>31</sup> See, for instance, the Opinion of the European Economic and Social Committee on 'Unleashing the Potential of Children and Young People with High Intellectual Abilities in the European Union' (own-initiative opinion) [2013] OJ C 76.

greater government support, in recognition of the fact that they “have not been well-served by the system in the past.”<sup>32</sup> To date, such promises have not been realised, and there remains a certain asymmetry in the law with regard to the educational needs that result from different levels of cognitive ability.

It thus seems unless giftedness is classed as a disability, vulnerable gifted children will not gain access to special protection under English law. Such an attempt was struck down in *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council*, where it was argued that section 312(2)(b) of the Education Act 1996 should be interpreted as including children of exceptionally high intelligence. In this argument, the court adopted a functional approach to constructing the word “disability”, similar to the House of Lords’ approach to the concept of “family” in *Fitzpatrick v Sterling Housing Association Ltd.*<sup>33</sup> The case of *S* did not settle the issue of whether a high level of intellectual ability could give a child a disability in the social setting of a mainstream school, as could be argued under the social model, in accordance with the UNCRPD.<sup>34</sup> Elias J denied the analogy between gifted children and children with learning difficulties for the purpose of access to special education, stating that there are ‘obvious social and economic reasons why it might be thought desirable to use resources to help the less able but not the most able’.<sup>35</sup>

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<sup>32</sup> N Harris, *Education, Law and Diversity* (Hart 2007) 327-328. Harris refers to the following publications: Department for Education and Skills, *Five Year Strategy for Teachers and Learners* (London, TSO, Cm 6272, 2004) at Ch.5, para.15 and Department for Education and Skills, *Higher Standards, Better Schools for All. More Choice for Parents and Pupils* (London, Cm 6677, 2005), paras 4.21–4.27.

<sup>33</sup> *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* [2005] EWHC 196 (Admin), [2005] ELR 443, at para. 25. *Fitzpatrick v Sterling Housing Association Ltd* [2001] 1 AC 27, where it was held that a same-sex partner could qualify as family.

<sup>34</sup> N Harris, ‘Exceptionally Able Children: The Current State of the Law in England’ (2015) 16 *Education Law Journal* 175, 186.

<sup>35</sup> *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 32) [38].

This is not a satisfying explanation if the law on disability has as its purpose the protection of vulnerable people, and a question arises of whether those who are highly gifted (either naturally or via enhancement) are not equally entitled to this protection. To be protected by the Equality Act 2010, ‘a person must have an impairment that meets the Act’s definition of disability, or be able to establish that any less favourable treatment or harassment is because of another person’s disability or because of a perceived disability’.<sup>36</sup> In light of the evidence of frequent bullying of gifted children, as reported by their teachers and parents,<sup>37</sup> it could be argued that the latter criterion is fulfilled and that the failure to protect gifted children as required by the Act amounts to unjustified discrimination.

In *S*, Elias J referred to economic reasons for this discrimination, but these are equally unconvincing, because the number of gifted children is small (by definition) and the number of gifted children in need of special educational provision *due* to their giftedness probably even smaller.<sup>38</sup> Recently, in *R (on the application of Tigere) v Secretary of State for Business, Innovation and Skills*,<sup>39</sup> the Supreme Court referred to an ‘exceptional cases discretion’ when numbers are small and the administrative burden is thus manageable.<sup>40</sup> Although this was a case concerning immigration status as a student loan eligibility criterion, the case is interesting in the present context because blanket exclusion was held to amount to disproportionate interference with

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<sup>36</sup> Office for Disability Issues, *Equality Act 2010 Guidance* (HM Government, 2011) 6.

<sup>37</sup> L Arseneault, L Bowes and S Shakoor, ‘Bullying Victimization in Youths and Mental Health Problems: “Much Ado About Nothing”?’ (2010) 40 *Psychological Medicine* 717.

<sup>38</sup> Exceptional intellectual ability does not shield against other learning difficulties – this is often referred to as being ‘twice exceptional’ – and it does not prevent a child with those difficulties from being classed as having special educational needs. Rather, the case of *S* settled the question of exceptional ability by classifying it as a learning difficulty. See Harris, ‘Exceptionally Able Children: The Current State of the Law in England’ (n 33) 178.

<sup>39</sup> *R (on the application of Tigere) (Appellant) v Secretary of State for Business, Innovation and Skills (Respondent)* [2015] UKSC 57.

<sup>40</sup> Council of Europe, European Convention for the Protection of Human Rights and Fundamental Freedoms, as amended by Protocols Nos. 11 and 14, 4 November 1950, ETS 5.

the right to education under Article 2 of the First Protocol to the European Convention on Human Rights (ECHR) and to discrimination contrary to Article 14 ECHR.<sup>41</sup> A similar line of argument could be followed in the case of gifted children under English law.

In summary, it seems that the law is currently not objective or consistent in its application to children with impairments and, for policy reasons, this is unlikely to change in the near future. This is unfortunate because an expansion of the current legal definition of disability would not only benefit current gifted children but it might also help protect future cognitively enhanced children. As long as their numbers are small, this expansion might be adequate; however, in the long run, specific legal provision would seem desirable and probably necessary. A widespread consideration of enhanced cognitive ability as a disability might have at least two fascinating consequences: first, education could be deemed a treatment, and could give rise to a right to additional and possibly expensive educational measures (for instance, claims for university education on the National Health Service);<sup>42</sup> and second, depending on the way in which cognitive enhancement is achieved – or more precisely, how far cognitive ability levels are raised – there could be cases in which a *reduction* in intellectual abilities would be equivalent to treatment.

This concludes the introductory sections. In Chapter Five I provide a very brief outline of the four papers, which are then replicated in the chapters that follow.

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<sup>41</sup> Ibid.

<sup>42</sup> At a recent conference, I raised this idea with the chair of the National Institute for Health and Care Excellence (NICE), Professor David Haslam, who agreed with me that this might be a consequence worth considering prior to making larger policy and regulatory decisions about cognitive enhancement.

## CHAPTER 5: Outline of papers

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### **Article 1: Can a Welfarist Approach be Used to Justify a Moral Duty to Cognitively Enhance Children?**

Published in *Bioethics*, Volume 30, Number 7, 2016, 528–535.

The desire to self-improve is probably as old as humanity: most of us want to be smarter, more athletic, more beautiful, or more talented. However, in light of an ever increasing array of possibilities to enhance our capacities, clarity about the purpose and goal of such efforts is crucial. This is especially true when decisions are made for children, who are exposed to their parents' plans and desires for them under the notion of increased well-being. In recent years, cognitive enhancement has become a popular candidate for the promotion of well-being; welfarists even impose a moral duty on parents to cognitively enhance their children for the sake of their well-being. In this article, I aim to show that welfarists are mistaken in inferring such a moral obligation from the potential benefit of cognitive enhancement. In support of this, I offer three arguments: (a) the vagueness of well-being as a theoretical concept means it is impossible to apply in practice; (b) the link between cognition and well-being is far from unequivocal; and (c) quantification issues with regard to cognition make a duty impossible to discharge. In conclusion, I reject the welfarist approach as a justification for a parental moral obligation to cognitively enhance children.

## **Article 2: Cognitively Enhanced Children: the Case for Special Needs and Special Regulatory Attention**

Published in *Law, Innovation and Technology*, Volume 8, Number 2, 2016, 177-206.

Although the welfare of the child is afforded special legal and moral importance, it appears that the law is currently not objective in its application to children. There is an undeniable link between healthy child development and education, with the latter greatly impacting on mental health and general well-being. Drawing on the example of the differential treatment of gifted children in an educational context, I argue that the legal framework with regard to learning disabilities and cognitive impairments operates contrary to the proclaimed goal of protecting and promoting the welfare of the child. This, I argue, constitutes unjustified discrimination, especially since there is a case to be made that highly cognitively able children could be considered disabled under a social model of disability. Whilst the group of affected children is small at present, developments in cognitive enhancement technologies mean that many more children might be affected in the future. Since the law currently fails gifted children, it is also, by analogy, likely to fail cognitively enhanced children.

### **Article 3: Beyond an Open Future: Cognitive Enhancement and the Welfare of Children**

Forthcoming: *Cambridge Quarterly of Healthcare Ethics*, Volume 26, Number 2, April 2017.

The advent of biomedical and genetic technologies promises new ways of changing various aspects of human life, including the improvement of physical and mental abilities and traits. Identifying the biological underpinning of general intelligence (*g*, or cognitive ability) with the goal of increasing it, has become the focus of current research efforts, presumably because intelligence is commonly perceived as an all-purpose good. People are assumed to want intelligence, whatever their values and life plans, because it is instrumentally valuable for most people in most circumstances. Put more simply: more of it cannot be bad. This idea is typically linked to the notion of well-being and one's ability to lead a 'good life.'

Whilst such cognitive enhancements are eagerly anticipated by enthusiasts, critics also express concerns about such interventions, especially when they involve children. In this debate, agreement appears limited to the moral and legal responsibility of parents for the well-being of their children, with both sides arguing that their parental position must serve the well-being of children best. Intrinsic in this argument is the child's right to an open future. This suggests that there is something at odds here: How can cognitive enhancement simultaneously further open and threaten a child's future?

I argue that this discrepancy stems from an incomplete assessment of the morality of cognitive enhancement interventions in children. Proponents tend to demonstrate too

strong a reliance on the outcomes of cognitive enhancement to justify their position, whilst opponents largely focus on critiques of the means of achieving such outcomes. What both sides fail to achieve, however, is a thorough moral assessment of the ends that are pursued. This, I argue, demonstrates an inadequate approach, because in determining the moral permissibility of cognitive enhancement, both means and ends must be considered. Only if both are deemed to be ethical can we positively conclude on the moral permissibility of cognitive enhancement in children, which will ultimately hinge on the effect on the welfare of children. As I will demonstrate, the right to an open future argument is insufficient, on its own, to reach such a positive conclusion, because there are several scenarios in the present cognitive enhancement context in which the welfare of children is at risk, independent from issues of future openness.

#### **Article 4: Shaping Children: The Pursuit of Normalcy in Paediatric Cognitive Neuroenhancement**

Forthcoming in S.K. Nagel (ed.), *Pediatric Neuroenhancement*, *Advances in Neuroethics*, Springer Press, 2017.

Within the broad field of human enhancement, paediatric cognitive neuroenhancement appears to arouse particular interest. The increasing importance of cognitive capacities in our contemporary and cultural context appears to be the main reason for the focus on cognition as the preferred trait of enhancement, while



the choice of pharmacological means is based on factors of feasibility, accessibility and cost. While the ethical issues arising in the adult context have already been extensively covered in the literature, paediatric neuroenhancement brings with it additional ethical challenges requiring further attention. Although there are numerous important ethical considerations, the focus of this chapter is on the pursuit of normalcy as the goal in paediatric neuroenhancement. Parental attempts to shape children are not new and the resources available for them to do so include widespread and mostly uncontroversial tools, such as education. The increasing use of psychotropic drugs, however, reveals the significant impact of the concept of normalcy, which has resulted in a trend to medicalise what used to be considered 'normal' (childhood) behaviour. In this context, special challenges are posed by psychiatric disorders, where the familiar treatment-enhancement distinction continues to be relied upon to justify interventions in children. Drawing on the examples of attention deficit/hyperactivity disorder (ADHD) and autism spectrum disorder (ASD), it will be argued that children are already being enhanced within psychiatric practice and that this is incompatible with an understanding of disability under a mixed model.

## **PART II: THE ARTICLES**

## CHAPTER 6:

### Can a Welfarist Approach be used to Justify a Moral Duty to Cognitively Enhance Children?

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#### 6.1 Background

Striving to improve one's life is probably one of the rare goals most of us would agree on. When reflecting about childhood and upbringing, parents express concern with their children's well-being. This is shared by many bioethicists, who consider increasing well-being a fundamental moral goal. In this article, I will examine the view of welfarists, who claim that parents have a moral obligation to cognitively enhance their children in order to promote their well-being.<sup>1</sup> I will reject the welfarist account as justification for such a parental duty to cognitively enhance children, because its purely normative nature cannot be reconciled with the need for practical applicability in the context of raising children in practice. A clear understanding of the components of well-being is required to make important decisions affecting children's lives, including those relating to possible enhancements. If a grown person, competent and autonomous, wishes to enhance himself, then other things being equal, it can be deemed morally permissible.<sup>2</sup> Other things not being equal, for instance where decisions are made for future children, difficulties arise and a valid moral justification is needed. I do not dispute that well-being of children matters morally in parental decision-making; however, to include cognitive enhancement within that duty on the basis of a welfare argument seems unfairly burdensome on

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<sup>1</sup> J Savulescu, RHJt Meulen and G Kahane, *Enhancing Human Capacities* (Wiley-Blackwell 2011).

<sup>2</sup> R Chadwick, 'Therapy, Enhancement and Improvement' in Bert Gordijn and Ruth Chadwick (eds), *Medical Enhancement and Posthumanity*, vol 2 (Springer 2008) 37.

parents, given the lack of specificity with regard to well-being in general, and the effects of cognition on well-being in particular. In practice, this uncertainty would make it impossible for parents to know how to discharge that duty. Yet this is precisely the type of duty some welfarists try to impose on parents, as I will demonstrate below.

One prominent attempt at providing such a justification is the welfarist approach to enhancement, which defines enhancement as ‘any change in the biology or psychology of a person which increases the chances of leading a good life in the relevant set of circumstances’.<sup>3</sup> Cognitive enhancement is singled out as being of particular importance:

Cognition plays a central role in our well-being as members of the species *homo sapiens*. In addition, it may provide significant social and economic benefits. These are all strong reasons to support cognitive enhancement. In many cases, cognitive enhancement will have to be done early in life to have maximum benefit. Parents will have to make choices for their children. Thus, as technology advances, parents will have a duty to enhance their children.<sup>4</sup>

It thus appears that the welfarist account of cognitive enhancement can be summarised as follows:

**P1: Well-being is the paramount consideration in moral decision-making.**

**P2: Cognition may positively affect well-being.**

**P3: Parents have a moral obligation to promote their children’s well-being.**

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<sup>3</sup> J Savulescu, A Sandberg and G Kahane, ‘Well-Being and Enhancement’ in Julian Savulescu, Ruud Ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011) 7.

<sup>4</sup> Ibid 16.

Leading to:

**C: Parents have a moral obligation to cognitively enhance their children.**

In the following paper, I will consider premises P1-P3 in turn, before answering the question of whether parents are under a moral obligation to cognitively enhance their children (C) on the basis of a welfare argument.

The first part will be a review of P1, which is an expression of welfarism in general. My main criticism will be its lack of practical applicability.

Following from there, P2 will be analysed and important conceptual and empirical shortcomings will be highlighted. In the third part, regarding P3, the question of maximisation will be addressed. I will argue that even a weaker version of an improvement obligation, one short of maximisation, fails to convince due to issues of quantification. This analysis will cumulatively lead to the conclusion that C cannot be successfully defended and no such parental duty to cognitively enhance children can be justified.

**6.2 P1: Well-being is the paramount consideration in moral decision-making (welfarism)**

Well-being has a long history in moral philosophy and today features in any credible moral theory.<sup>5</sup> Raz's 'humanistic principle', for instance, states that 'the explanation and justification of the goodness or badness of anything derives ultimately from its

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<sup>5</sup> R Crisp, 'Well-Being', Edward N. Zalta (ed), *The Stanford Encyclopedia of Philosophy* (Summer edn, 2013) <<http://plato.stanford.edu/archives/sum2013/entries/well-being>> accessed 10 July 2016.

contribution, actual or possible, to human life and its quality.’<sup>6</sup> Welfarism is the most extreme view, according to which the justificatory force of any moral reason ultimately rests on well-being,<sup>7</sup> a concept which is most commonly used to describe what is noninstrumentally good for a person.<sup>8</sup>

The intuitive appeal of such an approach is obvious: even in the absence of an unequivocal definition of a ‘good life’, we can readily identify and agree on at least some components of such a life. Friendship, love, knowledge, and health, are common and largely uncontroversial contenders, which can easily be subsumed under the umbrella of well-being.

Intuitions, however, have no probative force – they are merely a reason to start looking for a good argument.<sup>9</sup> For a moral theory to stand up to scrutiny, more than plausibility is required or it cannot inform our ethical decision-making process, which we need it to if we want to move beyond theory to practical application. To derive rules about how we ought to live our lives – moral rules – we have to be clear and open about the goals we are pursuing.

As Richard Kraut points out:

Since good rightly occupies a central place in our deliberations, the most urgent practical task of philosophy is to discover what the content of

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<sup>6</sup> J Raz, *The Morality of Freedom* (Oxford University Press 1986) 194.

<sup>7</sup> Crisp (n 5).

<sup>8</sup> Ibid.

<sup>9</sup> J Griffin, *Well-Being: Its Meaning, Measurement, and Moral Importance* (Clarendon Paperbacks edn, Oxford University Press 1986) 2.

goodness is – to discover, in other words, what concrete goal (whether it be knowledge, or virtue, or pleasure) should be placed at the center.<sup>10</sup>

Yet this is precisely what proponents of welfarism fail to do in the context of enhancement. Although the ‘interpretation of welfarism is itself a matter of dispute’,<sup>11</sup> a contemporary expression in this context states:

The welfarist account is inherently normative. It ties enhancement to the value of well-being. [...] It singles out well-being as one dimension of value that is constitutive of genuine human enhancement. But it leaves open substantive and contentious questions about the nature of well-being, and important empirical questions about the impact of some treatment on well-being.<sup>12</sup>

All we are told is that the ultimate *good* or goal to be pursued is well-being, but there is no indication as to what this entails. If one believes that the purpose of ethics is to practically inform our moral decision-making process and not merely to develop and perfect moral theory, as I do,<sup>13</sup> practical applicability of the welfarist approach has to be established. If the claim that parents have a moral obligation to cognitively enhance children for the sake of their well-being is to be successfully defended, it

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<sup>10</sup> R Kraut, *What Is Good and Why: The Ethics of Well-Being* (Paperback edn, Harvard University Press 2009) 16.

<sup>11</sup> Crisp (n 5).

<sup>12</sup> Savulescu, Sandberg and Kahane (n 3) 7.

<sup>13</sup> I agree with Aristotle that ethics is a practical rather than theoretical study, one aimed at becoming good and doing good rather than knowing for its own sake. Aristotle, *The Nicomachean Ethics* (W. D. Ross and Lesley Brown trs, Oxford University Press 2009). See also R Chadwick, ‘What is “Applied” in Applied Ethics’ (2009) 1 *Journal of Applied Ethics and Philosophy* 1.

must be demonstrated how the theory can be applied in practice.<sup>14</sup> A theory which leads to moral duties which cannot be discharged is void of all practical value.

In times where scientific ambition is rapidly increasing and biotechnological progress is fast, it is crucial to focus on practical issues and on finding solutions to real problems, which requires any ethical approach to provide substantive content within any theoretical framework. Given this importance of practical applicability in current bioethics, it appears that the professed strength of the welfarist approach to cognitive enhancement, namely its normativity, actually constitutes a serious weakness in practice. The welfarist approach, being normative in nature, does not offer any guidance on how to identify any of the constitutive elements of well-being. The idea of cognition bearing directly on one's well-being is no more substantiated than the assumption that it is somehow good to be tall. It can plausibly be argued that tallness is a good thing to have, in that it conveys certain advantages, such as being able to reach things high up or emanating authority. However, the converse could be equally convincingly argued, namely that – at least beyond a certain level – being tall has great disadvantages, such as not being able to fit comfortably into airplane seats or that some people might feel intimidated by a tall stature. This does not affect the potential disbenefit of being short, but rather shows that in some cases quantity matters. A judgment of the goodness or badness of tallness is necessarily contextual and depends both on the individual and the circumstances.<sup>15</sup> Therefore, in order to make a successful claim that cognition positively impacts on well-being, flesh needs to be put on the bones and we need to investigate what well-being really consists of.

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<sup>14</sup> Chadwick, 'What is "Applied" in Applied Ethics' (n 13). Chadwick notes that applied ethics requires collaboration between different disciplines to avoid blindness to relevant considerations outside of the ethical framework.

<sup>15</sup> And on quantity, which I will address below.



### 6.2.1 Theories of Well-Being

Usually three types of theories of well-being are distinguished, namely hedonism, desire theories, and objective list theories. Whilst hedonism in its simplest form is concerned with achieving the greatest balance of pleasure over pain, the other two theories are based on the view that certain things are objectively good for humans (objective list theory) or that fulfilment of desires is what matters for well-being (desire theory).<sup>16</sup> All theories exist in different versions, and two examples are worth mentioning in the present context, because they shed light on the shortcomings of the welfarist account.

Kraut advocates a theory called ‘developmentalism’, which is an advanced version of Derek Parfit’s objective list approach.<sup>17</sup> At the heart of it lies the idea of *flourishing*, which for human beings is defined as ‘possessing, developing, and enjoying the exercise of cognitive, affective, sensory, and social powers (no less than physical powers)’.<sup>18</sup>

An alternative view is offered by James Griffin, who acknowledges that a simple desire account is unsatisfactory because actual desires can be faulty and instead proposes an informed desire account.<sup>19</sup> Well-being, according to him, is dependent upon an individual’s own desires, as well as based on certain values, which are not based on one person’s desires but instead apply to all individuals.<sup>20</sup> The approach is thus both objective and subjective, by being flexible enough to accommodate variations between individuals.

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<sup>16</sup> Crisp (n 5).

<sup>17</sup> Kraut (n 10) 141.

<sup>18</sup> Ibid 90.

<sup>19</sup> Griffin (n 9) 12.

<sup>20</sup> Ibid 32-33. The priority and extent to which a particular value applies to an individual can, however, vary.

What the brief discussion of these approaches demonstrates is that although commonly used in everyday speech, the meaning of ‘well-being’ is far from unambiguous and as a concept in moral philosophy needs to contain at least some substantive content in order for it to be of any practical use.

### **6.3 P2: Cognition may positively affect well-being.**

#### **6.3.1 Cognition and well-being**

Large-scale research is currently underway to identify the genetic bases of various cognitive functions, particularly of intelligence.<sup>21</sup> The motivation for this pursuit lies in the firm belief that cognition can be modified in a way which will enable us to live a better and more successful life. A causal link is readily assumed between cognition and well-being, yet there is no more than anecdotal evidence to back up such a claim.<sup>22</sup> Correlation does not mean causality.

Claiming that cognition has an impact on well-being, Savulescu, Sandberg, and Kahane state that:

Cognitive capacities are the required for deployment of any kind of instrumental rationality – the capacity to reliably identify means to one’s ends and projects. Better cognition means better access to information about one’s surroundings and about one’s own biology and psychology, as well as better abilities to use this information in rational planning. Persons need to exercise

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<sup>21</sup> G Naik, ‘A Genetic Code for Genius?’ (*Wall Street Journal*, 2013) <<http://online.wsj.com/news/articles/SB10001424127887324162304578303992108696034>> accessed 24 August.

<sup>22</sup> On the complexity of causality and correlations in this context see for instance R Veenhoven and Y Choi, ‘Does Intelligence Boost Happiness? Smartness of All Pays More than Being Smarter than Others’ (2012) 1 *International Journal of Happiness and Development* 5.

instrumental rationality in order to obtain pleasure and avoid pain, in order to fulfil their desires, and in order to realize objective goods. So cognitive enhancement should promote well-being on all major theories of well-being.<sup>23</sup>

In the same context, they draw a distinction between *functional* enhancement and *human* enhancement, asserting that in ethical debate it is the latter that matters most, not the enhancement of ‘some capacity or power (e.g. vision, intelligence, health)’.<sup>24</sup> But in arguing that cognition positively affects well-being, this distinction appears confusing given that functional enhancement is then simply an intermediate step towards human enhancement, but that sometimes a human enhancement may not consist in the improvement of a function. The example given is intelligence, where they perceive of situations in which it might be appropriate to diminish IQ for the sake of increased well-being.<sup>25</sup>

While super-intelligence might seem to be an enviable trait or disposition, being ‘too smart for one’s own good’ is not always a mere teasing admonition: for many intellectually gifted individuals, very high intelligence can come at a direct cost to their overall well-being.<sup>26</sup>

This seems to be a contradiction, because it suggests that cognition might not be positively linked to well-being after all, but that there simply is a relationship between the two, which may or may not be positive. It might be too little or too much. We simply do not know and Earp et al. readily acknowledge that which one it

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<sup>23</sup> Savulescu, Sandberg and Kahane (n 3) 10.

<sup>24</sup> Ibid 3.

<sup>25</sup> BD Earp and others, ‘When is Diminishment a Form of Enhancement? Rethinking the Enhancement Debate in Biomedical Ethics’ (2014) 8 *Frontiers in Systems Neuroscience* 1, 8.

<sup>26</sup> Ibid 4.

is depends on circumstances: ‘Identifying diminishment as a possible form of human enhancement, therefore, invites us to ask whether we may have *too much X* for the best life, based on the relevant local circumstances and other facets of modern living.’<sup>27</sup> But we cannot realistically know these circumstances and facets in advance of children having reached a certain age at which stage an enhancing intervention may no longer be possible.<sup>28</sup>

I acknowledge that intelligence is seen by some as an ‘elusive concept, incorporating many different aspects’<sup>29</sup> and is not to be equated with cognitive abilities. However, whilst intelligence as a conclusive factor may be questioned, there is widespread agreement amongst experts in the field, that general cognitive capacity, which ‘facilitates reasoning, problem-solving, decision making, and other higher order thinking skills’,<sup>30</sup> as expressed by the factor *g* is measurable and highly relevant to a person’s life chances – more so than any other trait.<sup>31</sup> It regulates the rate of learning and greatly affects the rate of return in knowledge to instruction and experience.<sup>32</sup> This seems to be in line with what is meant by instrumental rationality, which according to the welfarist approach affects one’s well-being. If this is true, and if it is also true that a reduction in IQ can sometimes be an enhancement, we are left wondering how to determine which level of cognitive ability is best for our well-being.

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<sup>27</sup> Ibid.

<sup>28</sup> Savulescu, Sandberg and Kahane (n 3).

<sup>29</sup> S Chan and J Harris, ‘Cognitive Regeneration or Enhancement: The Ethical Issues’ (2006) 1 *Regenerative medicine* 361, 362.

<sup>30</sup> LS Gottfredson, ‘Why *g* matters: The Complexity of Everyday Life’ (1997) 24 *Intelligence* 79, 81.

<sup>31</sup> Ibid.

<sup>32</sup> LS Gottfredson, *The General Intelligence Factor* (Scientific American, Incorporated 1998) 26. Gottfredson points out that *g* cannot substitute for either instruction or experience.

Similarly, it could be argued that being less emotionally receptive or empathetic is advantageous for one's well-being in that one becomes less vulnerable. The welfarist approach could support the claim that we should diminish our emotional capacity in order to achieve a human enhancement. Maybe in extreme cases this would indeed be supported by welfarists, but where we draw the line is important if we are to make decisions for our children – we must find a way of determining how much or how little of something is acceptable when we make important decisions with far-reaching consequences for others at a time where only limited contextual information is available to us (as we do not know much about our children's future). Kahane and Savulescu suggest we rely on our everyday understanding, because 'there is considerable consensus about the particular traits or states that make life better or worse'.<sup>33</sup> They reiterate that it is one of the strengths of the welfarist approach that 'it does not rely on a controversial conception of well-being'<sup>34</sup> and instead allows for various interpretations of what is good. Rough answers to questions about well-being, so they claim, are sufficient.<sup>35</sup> This could then support a parent's decision to reduce empathy in a child to avoid vulnerability<sup>36</sup> – in light of the current state of the world when watching the news, this seems increasingly plausible; it is also a pragmatic approach, because it could be far easier to reduce one's susceptibility to badness than to make the world a better place overall.

### **6.3.2 Cognitive enhancement and well-being**

So it appears that the role of cognitive abilities in well-being is far from clear.

Furthermore, even if a positive link between cognitive capacities and well-being is

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<sup>33</sup> G Kahane and J Savulescu, 'The Welfarist Account of Disability' in Kimberley Brownlee and Adam Cureton (eds), *Disability and Disadvantage* (Oxford University Press 2009), 48.

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

<sup>36</sup> Neuroscientist Simon Baron-Cohen has suggested that even too much empathy may have some maladaptive consequences in some cases. See Earp and others (n 25) 412.

accepted, it does not follow that a change in cognitive powers by way of enhancement would necessarily bring a benefit. This is disputed by Chan and Harris, who are convinced that ‘for a given individual, it is hard to see how a simple increase in intelligence could be other than beneficial: intelligence has been shown to correlate with socioeconomic success, health and longevity, all of which are normative goods’.<sup>37</sup> The first point to note is that it is in the very nature of statistics that you cannot derive truths about an individual from facts about a group: if it is true that, in general and for the majority of people, an increase in intelligence will be beneficial, it is not the case that this will hold true for *any given individual*. In particular, the value of increased intelligence (at least beyond a pathologically low level) greatly depends on cultural context and the political system one lives in.<sup>38</sup> Furthermore, there is an issue with causality here. Claims in support of cognitive enhancement based on a link between factors such as life expectancy and health and intelligence are common. However, the initial plausibility can be called into question by considering the available data in more depth: for instance, nutrition has long been known to influence the development of intelligence<sup>39</sup>, which means that better health and greater life expectancy might well be caused by better nutrition. Intelligence could then be said to be a co-factor affected by nutrition, rather than intelligence being positively correlated to health.

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<sup>37</sup> Chan and Harris (n 29).

<sup>38</sup> RJ Sternberg, ‘Intelligence’ (2012) 3 Wiley Interdisciplinary Reviews: Cognitive Science 501, 507.

<sup>39</sup> R Colom, JM Lluís-Font and A Andrés-Pueyo, ‘The Generational Intelligence Gains are Caused by Decreasing Variance in the Lower Half of the Distribution: Supporting Evidence for the Nutrition Hypothesis’ (2005) 33 *Intelligence* 83; M Sigman and SE Whaley, ‘The Role of Nutrition in the Development of Intelligence’ in Ulric Neisser (ed), *The Rising Curve: Long-Term Gains in IQ and Related Measures* (American Psychological Association 1998) 155-82.

### 6.3.3 Potentiality

A further important point is the question of potentiality. The welfarist account of cognitive enhancement is quite open about the fact that we are only talking about increasing chances of leading a good life – there are no certainties. By stating that ‘[i]t is important to recognize that something expected to increase the chances of leading a good life may, in a probabilistic world, not result in a good life’,<sup>40</sup> we are being prepared for disappointment. Cognitive enhancement simply is not enough, unless well-being is reduced to socioeconomic success. As Gottfredson explains, ‘[h]igh-IQ individuals may lack the resolve, character or good fortune to capitalize on their intellectual capabilities, but socioeconomic success in the postindustrial information age is theirs to lose’.<sup>41</sup> Therefore, cognitive enhancement does not end at the point where, for instance, genetic modifications are made to raise the level of cognitive ability of a child. If we want to increase the probability of the enhanced child experiencing greater well-being, we must understand the intervention as only a first step: in Kraut’s terminology, this means that we must also ensure the development and exercise of the powers given, not just their presence. This might turn a mere possibility of a positive outcome of enhancement into at least a probability.

To summarise, there appear to be both conceptual and empirical shortcomings in the welfarist account: empirically, the link between cognition and well-being is not definitively established, particularly the direction of the possible correlation is unclear and seems to vary beyond a threshold which is not specified and which is assumed to be circumstantial. Conceptually, the required minimum amount of

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<sup>40</sup> Savulescu, Sandberg and Kahane (n 3) 8-9.

<sup>41</sup> Gottfredson, *The General Intelligence Factor* (n 32) 29.

subjectivity any practically applicable account of well-being needs is lacking, leaving the welfarist approach a theoretical concept, unsuitable for overcoming practical obstacles in deciding whether or not an enhancement can be deemed morally obligatory (or even permissible).

#### **6.4 P3: Parents have a moral obligation to maximise their children's well-being.**

Granting that parents have certain moral (and legal) obligations with regard to their offspring, the question which remains is the precise nature and extent of these duties. Basic duties, such as the provision of food, aside – is there a parental duty to maximise one's children's well-being? If so, how could the duty be discharged? To increase and to maximise well-being, we need to be able to measure it.<sup>42</sup> However, the above discussion has shown that criteria for quantification are distinctly lacking and the example of cognition also shows that whether an increase in ability has a positive or negative impact on well-being will to some extent depend on the individual circumstances. If parents cannot foresee the effect of their actions on their children's well-being, it appears that the discharge of a moral duty to maximise well-being becomes an impossibility.

##### **6.4.1 Quantification**

If parents are to discharge their duty, they must be offered more guidance than 'rough answers' to what might be best for their children's well-being, in circumstances completely unknown at the time of having to make the decision to enhance. How are we to know when enhancement is sufficient and is there a minimum threshold, an optimal level or is it an infinite good?

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<sup>42</sup> Griffin (n 9) 102: 'How are we going to measure well-being in the messy everyday situations in which we have to apply the policy of maximising?'



These questions are difficult to answer but at least with regard to the bottom end of the scale, we have some indication. Linda Gottfredson has identified an IQ of 75 as possibly ‘the most important threshold in modern life’,<sup>43</sup> below which an individual ‘will have a hard time functioning independently without considerable social support’.<sup>44</sup> This seems a reasonable threshold to adopt, given the importance attached to autonomy in our society. So a parental moral obligation to ensure the minimum threshold of cognition is reached could likely be established, at least where this can be done safely.

Beyond this, however, it becomes increasingly difficult to determine a range or level of cognition conducive to maximising well-being. The problem is the absence of a clear and substantive definition of well-being. Whilst it seems uncontroversial that the ability to be autonomous features in well-being, and this might well be one of the ‘rough answers’ previously mentioned, there is little more to guide us on the required quantities of cognition and other potential components of well-being. Griffin, referring to basic needs, points out that these tend to become less important the more they are already met and at some level of satisfaction cease to be important at all.<sup>45</sup> This might well be true for cognitive capacities, so that there is no maximisation argument.

Kraut with his notion of flourishing only refers to the ‘healthy development and exercise of human mind’, but as the long-lasting treatment/enhancement debate shows, *healthy* is not a helpful criterion in moral philosophy. Flourishing, it seems, does not necessarily require the enhancement of any particular capacity or power, as

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<sup>43</sup> Gottfredson, *The General Intelligence Factor* (n 32) 29.

<sup>44</sup> *Ibid.*

<sup>45</sup> Griffin (n 9) 51.

long as the capacity is present and can be developed and enjoyed: '[T]here is no reason to increase someone's powers, unless doing so removes a deficiency; and something can be identified as a deficiency only by means of a theory of well-being.'<sup>46</sup> This seems to support the minimum level claim made above, and along the lines of Griffin's argument, that there is a point where enough cognition is present. Where this threshold is, we still do not know.

#### **6.4.2 Public argument**

On the large scale, another argument for at least some quantification guidance is that uninformed enhancement decisions are likely to lead to an unnecessary waste of resources. In terms of economic efficiency, any benefit gained (any increase in well-being) must be weighed against the cost incurred. If public resources are to be used for cognitive enhancement, budget prioritisation needs to follow a line of cost-effectiveness unless we encounter utopian circumstances where all interventions can be paid for. Realistically though, decisions will need to be made on which types of enhancement are worth their cost. This is not just a moral argument but also a question of public policy, but if there is to be any practical value to be derived from welfarist theory, an answer to how this will be handled needs to be found. Furthermore, the question of whose responsibility it is to enable the cognitive enhancement of children – through funding and legislation – is also an important moral question, especially since many of the benefits associated with such enhancements seem to be not on an individual but on a community level, in which the state has a vested interest.<sup>47</sup> Morality requires that public monies be spent

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<sup>46</sup> Kraut (n 10) 178.

<sup>47</sup> A Sandberg and J Savulescu, 'The Social and Economic Impacts of Cognitive Enhancement' in Julian Savulescu, R. H. J. ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011) 92-112; Chan and Harris (n 29).

effectively and not wasted on futile (and possibly risky) interventions. With regard to cognition, it is well-known that a number of factors, such as better nutrition, less environmental pollution, and reduced exposure to toxins, improve child development, including cognition,<sup>48</sup> and most likely at a much lower cost than any conceivable cognitive enhancement intervention in the near future.

But even if enhancements are to be paid for privately, a potential waste of resources is still relevant, because parents will have to go by their own interpretation of which interventions will lead to increased well-being. They will be greatly susceptible to clever marketing by service or product providers and might fall victim to the belief that more is always better. This is mistaken, as the example of IQ mentioned earlier shows. Misguided enhancement might then unintentionally lead to a worsening rather than an improvement of an individual's life.

### **6.4.3 Alternatives**

Regardless of costs, there is another danger, namely that the focus on cognitive enhancement will distract from other ways of improving well-being. Levy has recently argued that when faced with a detrimental mismatch between our capacities and our context, it is often better to change our environmental conditions than it is to re-tool our biology, all things considered.<sup>49</sup> Kraut argues along the same lines with his idea of flourishing, which requires an individual not only to have a certain capacity, but also the *opportunity to exercise* that power. Merely providing children

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<sup>48</sup> Sandberg and Savulescu (n 47).

<sup>49</sup> N Levy, 'Ecological Engineering: Reshaping Our Environments to Achieve Our Goals' (2012) 25 *Philosophy & Technology* 589.

with great cognitive ability and then leaving them to their own devices will not make them flourish, and will not improve their well-being.<sup>50</sup>

In summary, it seems that imposing a moral duty on parents to maximise their children's well-being cannot be justified. Whilst it is undisputed that parents owe certain duties to their children, some of which might exceed the fulfilment of the most basic of needs such as food and shelter, a positive duty involving the maximisation of well-being would be impossible to discharge. Too little is known about well-being and how this is impacted to provide thorough guidance on how parents should act. In light of this, specific well-being decisions should be left to parents and parental autonomy should be respected.

The cumulative effect of the above discussion leads to the conclusion that there cannot be a moral obligation to cognitively enhance children based on well-being. But even if these arguments all fail and P1-P3 were to be accepted as valid premises, it still does not follow that C is correct. For a finding of a moral duty to cognitively enhance children, the mere possibility of a positive impact on well-being of a child will have to be carefully weighed against other considerations, such as possible side-effects and alternative ways of promoting well-being. Again, this is partly an empirical question.

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<sup>50</sup> The importance of developing one's potential is also expressed in the UN Convention on the Rights of the Child: Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol. 1577. See Articles 27 (standard of living adequate for the child's physical, mental, spiritual, moral and social development) and 29 (education to be directed to the development of the child's personality, talents and mental and physical abilities to their fullest potential).

### **6.5 C: Parents have a moral obligation to cognitively enhance their children.**

It is undisputed that ‘what does no good should not be done (unless every alternative is worse)’.<sup>51</sup> So for the moment, we will assume that there is at least some good to be derived from cognitive enhancement, even if it consists merely in a possibility. Still, this is not enough to justify a moral obligation.<sup>52</sup>

On a conceptual level, it seems overzealous to infer a duty to cognitively enhance one’s children without clear evidence that this will bring about a benefit.<sup>53</sup> A finding of moral permissibility might be made on the potentiality of an improvement in well-being, but to imply a duty is to disregard the very essence of the welfarist approach, namely the openness to varying substantive notions of well-being. Parents might well choose to answer the substantive questions about well-being in a different manner, for instance one which places cognition below athletic ability in the hierarchy of components of well-being. Presumably, on all accounts of well-being, there is more to it than finding employment and being healthy, so a variation in priorities is highly probable.

On a practical level, the question arises as to how it would ever be possible to dispose of such a duty, unless an optimal level or acceptable range of cognitive ability was to be specified.

In addition, given that according to the welfarist account, diminishment of cognitive ability can sometimes constitute an enhancement, it appears virtually impossible for parents to make a decision prior to their children having reached a certain age when

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<sup>51</sup> Kraut (n 10) 231.

<sup>52</sup> Ibid 212: ‘The mere fact that an act would do some good is never, by itself, enough to support a conclusion about what should be done.’

<sup>53</sup> Coincidentally, it could be argued if that much emphasis is placed on cognition as a factor impacting on well-being, this constitutes an argument in favour of sex selection of embryos, given the evidence that males on average have greater *g*.

there is sufficient contextual information available to know whether a particular intervention, such as increase in IQ, will be a human enhancement or an undesirable functional enhancement reducing well-being. '[T]o draw a practical conclusion, one needs more than a general conception of what is good; one must also know something about who the potential beneficiaries of one's actions are, and about how one is situated in relation to them.'<sup>54</sup> This might only be possible when it has become too late for cognitive enhancement to have the desired effect.

The identification of advantageous and disadvantageous predispositions without the relevant contextual information is likely to be error prone. Habermas maintains that as a result, even in the case of physical disability there is no justification for enhancement: 'Not even the highly general good of bodily health maintains one and the same value within the contexts of different life histories. Parents can't even know whether a mild physical handicap may not prove in the end to be an advantage for their child.'<sup>55</sup> Due to this uncertainty, it might then be best to err on the safe side and prevent enhancement of children, which is the idea raised by Joel Feinberg that children have a 'right to an open future', which means that parents are under a duty to keep their children's future options open until they are capable of making their own decisions.<sup>56</sup>

Whilst this might seem overly cautious and practically unrealistic given the current technological developments, we might nevertheless want to stop at moral permissibility and not infer a duty which cannot be justified. As Atul Gawande states

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<sup>54</sup> Kraut (n 10) 213.

<sup>55</sup> J Habermas, *The Future of Human Nature* (Polity 2003) 86.

<sup>56</sup> J Feinberg, 'The Child's Right to an Open Future' in William Aiken and Hugh LaFollette (eds), *Whose Child? Children's Rights, Parental Authority, and State Power* (Littlefield, Adams & Co. 1980).

in the Reith Lectures 2014, there is a general phenomenon ‘that once we have high-tech capacity, we have trouble using it wisely’.<sup>57</sup>

## 6.6 Conclusion

In this article, I have argued that the welfarist account of enhancement fails to justify a parental duty to cognitively enhance children, on a number of grounds. Adopting a practical approach, which requires any moral argument to go beyond being merely theoretical and to also be applicable in practice, I have shown that the inherent normativity of the welfarist account prevents this applicability. Without a substantive understanding of what well-being is, we cannot practically work towards increased well-being - the goal of increased well-being is so vague that it can accommodate almost anything. If we leave open the question about the components to well-being, it seems that we are moving towards an exclusively subjective interpretation of well-being, which is not what welfarists have in mind: ‘subjective well-being is the whole of well-being only on hedonistic theories, although it is a significant component of well-being on all plausible views’.<sup>58</sup>

Being a plausible and appealing theory cannot save the welfarists’ claim that there is a moral obligation to cognitively enhance children, because unless more is known about the content and extent of it, it will simply be impossible for parents to discharge such a duty.

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<sup>57</sup> A Gawande, *The Idea of Well-Being (The Reith Lectures 2014: The Future of Medicine)* (BBC 2014), Transcript 5 <[http://downloads.bbc.co.uk/radio4/open-book/2014\\_reith\\_lecture\\_4\\_delhi.pdf](http://downloads.bbc.co.uk/radio4/open-book/2014_reith_lecture_4_delhi.pdf)> accessed 10 November 2016.

<sup>58</sup> Savulescu, Sandberg and Kahane (n 3) 11.

I have shown that there are significant uncertainties inherent in the welfarist account of enhancement, namely that it relies on a possible but unestablished causal link between cognition and well-being. Although there is evidence of a link between economic success and cognition, no such evidence is forthcoming with regard to other components including subjective well-being. Unless one believes that the latter is less important, and that what truly matters is the effect on one's socioeconomic status, the account is not satisfying due to its incompleteness.<sup>59</sup>

In the absence of proper quantification of the possible benefit of cognitive enhancement, we also run a risk of wasting our resources. There is evidence that monies might be spent more wisely on improving nutrition, education, and social and employment opportunities for those with a suboptimal level of cognitive ability. All of these are already available to us now and there is no reason to hold off for further technological advances to become available and for them to lead to a moral duty to act. If there are things which can be done now to improve lives, they should be done. Harris suggests making children a little bit smarter, so that they can benefit more from education and as a result lead better lives.<sup>60</sup> But is cognitive enhancement really the best approach for this or should we work on improving the education we provide?<sup>61</sup> Amongst those not currently benefiting from education as well as they could are the highly gifted, who wouldn't be helped by cognitive enhancement, because they already have the necessary cognitive capacity.<sup>62</sup> It also raises the

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<sup>59</sup> Griffin (n 9) 2-4: Any good argument in normative ethics has to pass the tests of completeness and correctness.

<sup>60</sup> J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007).

<sup>61</sup> Again, this is not to imply that cognitive enhancement is not a valid approach but rather serves as a reminder that we should not forget about other, currently available alternatives.

<sup>62</sup> The evidence with regard to this is inconclusive. See H Greely and others, 'Towards responsible use of cognitive-enhancing drugs by the healthy' (2008) 456 *Nature* 702 who suggest that healthy



question of what the ultimate goal is: education is only a means to an end. Unfortunately, Harris provides no clarification on where this should lead to but presumably also considers some notion of well-being (incorporating economic situation and health) as the ultimate goal.

Empirical evidence might go some way towards establishing a link between cognition and well-being, but this does not necessarily suffice to justify a moral duty for parents to cognitively enhance their children. It might make such intervention morally permissible, but in order for such a duty to arise the benefit must be clear, significant and probable.

Well-being remains a fuzzy concept. It seems as if some philosophers are perfectly content with the establishment of a normative notion of well-being and do not worry about its practical applicability. The danger, as I see it, lies in the oversight of individual welfare, expressed in subjective terms. It seems too easy to justify cognitive enhancement by appealing to well-being when really what is being focussed on is societal productivity.<sup>63</sup> The individual's life preferences and satisfaction come second.<sup>64</sup> In policy-making, this might be acceptable; in ethical discourse it needs to be justified. This, I believe, has not been done yet by welfarists.

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individuals are likely to benefit from cognitive enhancement; and B Sahakian and S Morein-Zamir, "Professor's little helper" (2007) 450 Nature 1157.

<sup>63</sup> What is morally permissible and desirable partly depends on context and might vary from one cultural setting to another, but as long as we don't live in a communitarian society, it is morally unacceptable to put some abstract concept of society's well-being before the individual.

<sup>64</sup> According to Buchanan, a strictly consequentialist approach would be to view even a minimal improvement to society overall as a justification to such enhancements, even at the cost of making a small number of individuals less well off. See A Buchanan and others, *From Chance to Choice: Genetics and Justice* (Cambridge University Press 2001).

## CHAPTER 7: Cognitively Enhanced Children:

### The Case for Special Needs and Special Regulatory Attention

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#### 7.1 Introduction

Parents' desire to have highly intelligent children remains fashionable, as television shows such as 'Child Genius'<sup>1</sup> and magazine articles about enrichment classes<sup>2</sup> suggest.<sup>3</sup> The discovery and understanding of the workings of human intelligence have been a matter of great interest for a long time,<sup>4</sup> and the possibilities of cognitive enhancement are becoming more real every day. Considering the research being undertaken in medicine, genetics, and pharmaceuticals, to increase and promote the development of specific cognitive abilities, and most importantly, general intelligence, it is sensible to start thinking about potential implications now – particularly for the most likely targets: children.<sup>5</sup> This is especially important since international scientists are continuing their efforts of identifying the genetic basis for intelligence and developing interventions to enhance cognitive ability, despite facing much scepticism.<sup>6</sup> The actual or expected success of any such attempts is not the

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<sup>1</sup> *Child Genius* (Television broadcast, Channel 4 2015) <[www.channel4.com/programmes/child-genius](http://www.channel4.com/programmes/child-genius)> accessed 10 November 2016.

<sup>2</sup> 'Power Up - Enrichment Special 01/2010' Young Parents <[www.youngparents.com.sg](http://www.youngparents.com.sg)> (Singapore) 39 accessed 10 November 2016.

<sup>3</sup> In addition, there is a growing trend for parents to give stimulant drugs to their children to enhance school performance. Recently, this has controversially been suggested as a suitable tool for addressing social disadvantage: K Ray, 'Not Just "Study Drugs" For the Rich: Stimulants as Moral Tools For Creating Opportunities For Socially Disadvantaged Students' (2016) 16 *The American Journal of Bioethics* 29.

<sup>4</sup> JA Plucker and AL Shelton, 'General Intelligence (g): Overview of a Complex Construct and Its Implications for Genetics Research' (2015) 45 *Hastings Center Report* S21, S21.

<sup>5</sup> On the importance of regulating enhancement with regard to children, see L Hagger and GH Johnson, "'Super Kids": Regulating the Use of Cognitive and Psychological Enhancement in Children' (2011) 3 *Law, Innovation and Technology* 137.

<sup>6</sup> E Yong, 'Chinese Project Probes the Genetics of Genius' (2013) 497 *Nature* 297; E Callaway, 'Second Chinese Team Reports Gene Editing in Human Embryos' (*Nature*, 8 April 2016) <[www.nature.com/news/second-chinese-team-reports-gene-editing-in-human-embryos-1.19718](http://www.nature.com/news/second-chinese-team-reports-gene-editing-in-human-embryos-1.19718)> accessed 10 November 2016; J Harris, 'Why Human Gene Editing Must not be Stopped' (*The*

determining factor for the need to engage in thorough analysis, but the reality of such pursuit calls for immediate reflections about the moral and legal issues encountered.<sup>7</sup>

The scientific progress which might eventually lead to successful cognitive enhancement (CE) interventions in children calls into question the sufficiency of many of the current legislative measures which are supposedly in place to protect children and their interests.<sup>8</sup> Only one perspective is covered: namely, the benefits of great cognitive ability. This is because there is an inherent danger with regard to the emergence of CE in overvaluing intellectual potential and misunderstanding the features and consequences of high cognitive ability,<sup>9</sup> which can lead to unjustified discrimination in relation to those expected to be more able than others. At present, anti-discrimination laws, equality schemes, and inclusive education programmes are aimed at strengthening the position of cognitively disadvantaged or disabled children.<sup>10</sup> Children at the other end of the spectrum are by default excluded from access to such measures – without any due consideration of their actual situation.

Two main issues will thus be addressed in this article: first, discrimination in the educational setting, and second, the role and responsibility of the state for the welfare of CE children. Finally, I will attempt to propose a solution to the dilemma of balancing all children's interests with the (financial) strains on both health and

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*Guardian*, 2 December 2015) <[www.theguardian.com/science/2015/dec/02/why-human-gene-editing-must-not-be-stopped](http://www.theguardian.com/science/2015/dec/02/why-human-gene-editing-must-not-be-stopped)> accessed 10 November 2016.

<sup>7</sup> For a suggestion of how regulatory assessment should be carried out with regard to human enhancement, see R Brownsword, 'Regulating Human Enhancement: Things Can Only Get Better?' (2009) 1 *Law, Innovation and Technology* 125.

<sup>8</sup> Although it could be contended that the law's purpose is not to protect children, but the public interest, by enforcing public policies and a neo-liberal political agenda of cost-effectiveness.

<sup>9</sup> Potential is not to be equated with realisation thereof. See K Asbury and R Plomin, *G is for Genes: The Impact of Genetics on Education and Achievement* (John Wiley & Sons 2014), 74: 'Nature requires nurture'.

<sup>10</sup> Whilst the moral objective of justice is not disputed, a case can be made against some of the current approaches. For instance, the practical implementation of inclusion in schools is somewhat problematic but a detailed analysis is beyond the scope of this paper.

educational systems. This will be based on the idea of inclusion, which properly understood should apply to protect the interests of all children,<sup>11</sup> not merely those disadvantaged in a particular way as is currently the case.

With regard to the first issue, discrimination, education law will provide an example: first of all, through its vital effect on the development of children into healthy adults,<sup>12</sup> education plays a direct role in health as a mechanism to prevent psychological illness; and secondly, children spend a significant proportion of their young lives in educational institutions and are exposed (and vulnerable) to the applied policies without being able to defend themselves against potentially harmful implications for their development.<sup>13</sup> An analysis of the treatment of ‘gifted’ children under English law reveals the level of discrimination experienced by those of exceeding intelligence. For instance, although there is nothing in the law to distinguish between different groups of children, the Education Act 1996 has been interpreted by the courts to explicitly exclude ‘gifted’ children from any special needs education consideration and this discrimination was found to be justified for policy reasons.<sup>14</sup> Since CE children are likely to share all the relevant traits with current ‘gifted’ children, their situation illustrates which challenges await future CE children.

The second issue concerns the regulation and facilitation of cognitive enhancement.

At present, due to the limited possibilities for cognitive enhancement, the

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<sup>11</sup> My reference to ‘all children’ does not suggest an individualistic approach, but that it should apply to all children in the sense of ‘all groups of children’, not excluding any set of children on the basis of certain characteristics.

<sup>12</sup> Meaning persons of legal age.

<sup>13</sup> Monk argues that both the family and the school ‘represent sites of childhood regulation, surveillance and control’: D Monk, ‘Children’s Rights in Education - Making Sense of Contradictions’ (2002) 14 *Child and Family Law Quarterly* 45, 49. See also Hagger and Johnson (n 5).

<sup>14</sup> *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* [2005] EWHC 196 (Admin), [2005] ELR 443.

administration of psychoactive drugs is the most common method.<sup>15</sup> However, in the longer term interventions will in all likelihood be genetic, for instance via preimplantation genetic diagnosis (PGD) or gene editing.<sup>16</sup> These procedures are likely to fall within the remit of the Human Fertilisation and Embryology Authority and will constitute regulated activities, which means the state will necessarily be acting as a facilitator if these activities become legally permissible. If the perceived benefits of CE turn out to be great enough, it is also likely the state will encourage parents to enhance their children, as this would be assumed to have positive network effects on society as a whole, comparable to literacy, numeracy and vaccinations.<sup>17</sup> For the state then not to ensure that CE children reach their potential would be irrational.

Linking these two issues is another important aspect, namely the possibility that CE children might be considered disabled under the current law. This is what I will argue in Part Four, by providing empirical evidence for the lesser known effects of high general intelligence and applying a social model of disability to gifted children. With regard to CE children, the case might be even stronger, if their cognitive ability reaches a level deemed ‘superhuman.’ If this claim can be defended, it would give

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<sup>15</sup> I Singh and KJ Kelleher, ‘Neuroenhancement in Young People: Proposal for Research, Policy, and Clinical Management’ (2010) 1 *AJOB Neuroscience* 3.

<sup>16</sup> For maximum benefit, procedures will have to be done early on in life, probably prenatally. Whilst later stage interventions via pharmacological or mechanical means are also likely, genetic intervention attracts most attention due to the genetic basis of cognition. Henry Greely suggests that reproductive technologies will be developed further to allow parents much greater choice over the genetic profile of their children. He believes that advances in stem cell research and genetics will result in ‘Easy PGD’, a procedure combining PGD and IVF to allow for cheap and safe sexless reproduction: see HT Greely, *The End of Sex and the Future of Human Reproduction* (Harvard University Press 2016).

<sup>17</sup> This suggestion might appear far-fetched; however, some US schools already require the administration of psychoactive drugs to children with particular behavioural profiles. See Z Stein and others, ‘Ethical Issues in Educational Neuroscience: Raising Children in a Brave New World’ in Judy Illes and Barbara Shahakian (eds), *The Oxford Handbook of Neuroethics* (Oxford University Press 2011) 813.

rise to a dilemma between permitting CE and the current legal prohibition on deliberately creating children with a disability.<sup>18</sup>

Because decisions about CE interventions will soon have to be made, a suitable legal framework to deal with the scientific possibilities and their implications for individual children as well as society at large is required. This needs to be based on ethical principles, such as fairness and beneficence, which in English law are expressed through, *inter alia*, the doctrine of ‘best interests’ and the prohibition of discrimination. Demonstrating that the law is currently not objective in its application to gifted children, I will argue that as the law fails those children it is by analogy also likely to fail CE children. If the state is to facilitate or even to encourage cognitive enhancement in children, the potential benefits and harms of CE need to be carefully weighed.

This article is in five main parts. First, in Part Two, some definitional matters are dealt with. In Part Three, a comparison between gifted children and CE children is made and their similarities are highlighted. In Part Four, an overview of the law on special educational needs in England is provided and the idea of how this could be perceived as discriminating against gifted and CE children is elaborated. In Part Five, the link between health and education is explained and its impact on the welfare of children is considered. Finally, the issue of responsibility for the welfare of CE children, including the role of the state in this context, is addressed in Section 7.6.

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<sup>18</sup> At least where this requires the use of HFEA-licensed treatment: Human Fertilisation and Embryology Act 2008 (Part 1, ss 14, 4.9) introduced a prohibition on deliberately ‘selecting in’ disease or disorder.

## 7.2 Definitions

Before comparing gifted children and CE children, and identifying their similarities, the term ‘giftedness’, which is often the source of much distress—to the children, as well as their families—needs to be defined. This is because such a label is not value-free but instead usually comes with expectations of high achievement attached.

Traditionally, children (and adults) with high intelligence, as measured by standardised IQ tests, are referred to as ‘gifted’.<sup>19</sup> Often the threshold is set at the top 2% of the Bell curve of intelligence,<sup>20</sup> but there is no universal agreement about the label. Despite its popularity, I will reject the terminology as biased and unsuitable for an objective analysis of the current legal situation. Giftedness implies an advantage, possibly an unfair genetic advantage, something which is given not earned, which the bearer ought to be grateful for, and which for the sake of justice should be evened-out in the context of education.

The charity organisation Potential Plus UK, whose purpose it is to ‘support the social, emotional and learning needs of children with High Learning Potential’<sup>21</sup> uses the term ‘child with high learning potential’ (HLP) to acknowledge that a genetic ‘gift’ is not to be equated with achievement, economic success, or happiness. The charity explains the issue:

Perhaps the word ‘gifted’ to you means ‘perfect’, so in labelling a child as ‘gifted’, this must mean that the future prospects for this child are

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<sup>19</sup> The term ‘gifted’ has been described as ‘conceptually and politically problematic’: ET Hansen, S Gluck and AL Shelton, ‘Obligations and Concerns of an Organization Like the Center for Talented Youth’ (2015) 45 Hastings Center Report S66, S66. For a historical overview of IQ testing and surrounding controversies, see Plucker and Shelton (n 4).

<sup>20</sup> For instance by Mensa, the high IQ society: Mensa UK (*website*) <[www.mensa.org.uk](http://www.mensa.org.uk)> accessed 10 November 2016. Agreeing on a precise threshold is not relevant to my argument.

<sup>21</sup> Potential Plus UK (*website*) <[www.potentialplusuk.org](http://www.potentialplusuk.org)> accessed 10 November 2016.

unequivocally bright and free from obstacles? Take this train of thought a little further and you can easily reach the conclusion that no one need worry about this child as they will be successful no matter what life throws at them and which school they go to. Cream surely rises to the top and a ‘gifted’ child is labelled as already being at the top of their class. The ‘gifted’ ones are already high achievers and will surely continue along that path smoothly; destined for success without the need for any further support or assistance.

This is far from the truth; in fact, HLP children are in definite need of extra challenge, support and identification by parents and educators.<sup>22</sup> Value-laden terminology does not further a rational debate, and for this reason, I shall refer to highly intelligent children as HLP children for the purposes of this article, and will start my discussion by explaining the similarities between HLP and CE children.

### **7.3 Children with high learning potential (HLP) and cognitively enhanced children (CE)**

Despite their best efforts, scientists have so far been unsuccessful in finding reliable ways to enhance cognition in humans. Although gene sequencing and mapping have significantly advanced our knowledge about our genetic make-up, we appear to be stuck at the point where the polygenic character of general intelligence is well-established,<sup>23</sup> rendering genetic manipulation a rather complex endeavour.<sup>24</sup>

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<sup>22</sup> Ibid.

<sup>23</sup> LS Gottfredson, *The General Intelligence Factor* (Scientific American, Incorporated 1998); M McGue and II Gottesman, ‘Classical and Molecular Genetic Research on General Cognitive Ability’ (2015) 45 Hastings Center Report S25.

<sup>24</sup> Although scientific progress is slower than anticipated, efforts to discover the genetic basis of intelligence remain high. Ongoing attempts to genetically manipulate embryos to increase their



Currently, selection is the most promising enhancement approach. The emergence of companies like 23andMe<sup>25</sup> is symptomatic for the desire to understand one's genetic basis, with new technologies now allowing for this knowledge to be translated into concrete actions, albeit with limited success. Whilst prospective parents resorting to IVF for infertility reasons already have an obvious (and depending on jurisdiction, also legal) way of expressing their choice, other parents opt for donor gametes to produce the most desirable offspring possible<sup>26</sup> even in the absence of infertility – intelligence featuring high on the social desirability scale.<sup>27</sup>

### 7.3.1 The social desirability of intelligence

Selection attempts are nothing new. Opponents of any kind of enhancement cite the Nazi medical experiments and the eugenics programme as deterrents for anyone open in principle to genetic selection.<sup>28</sup> Although the voluntariness of selective breeding schemes might go some way to counter such arguments, it is undeniable that the Nazi ideology has fascinated some and even led some people to support the frequently ridiculed 'Repository of Germinal Choice' in the United States of America in the 1980s and 1990s. Better known as the 'Nobel Prize sperm bank', it received much

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cognitive ability mean legal and ethical decisions about such interventions will have to be made sooner rather than later.

<sup>25</sup> '23andme is a DNA analysis service providing information and tools for individuals to learn about and explore their DNA': '23andMe' (*website*) <[www.23andme.com](http://www.23andme.com)> accessed 10 November 2016.

<sup>26</sup> Even at the cost of giving up their own genetic heritage. See M Henneberger, 'The Ultimate Easter Egg Hunt: "Ivy League Couple" Seeks Donor with "Highest Scores"' *The Washington Post blog post* (21 March 2013) <[www.washingtonpost.com/blogs/she-the-people/wp/2013/03/21/the-ultimate-easter-egg-hunt-ivy-league-couple-seeks-donor-with-highest-percentile-scores/](http://www.washingtonpost.com/blogs/she-the-people/wp/2013/03/21/the-ultimate-easter-egg-hunt-ivy-league-couple-seeks-donor-with-highest-percentile-scores/)> accessed 10 November 2016.

<sup>27</sup> Intelligence was found to be the most requested trait by ovum recipients; see H Flores and others, 'Beauty, Brains or Health: Trends in Ovum Recipient Preferences' (2014) 23 *Journal of Women's Health* 830. Another popular contestant is athletic ability. See also J Macur, 'Born to Run? Little Ones Get Test for Sports Gene' *The New York Times* (30 November 2008) <[www.nytimes.com/2008/11/30/sports/30genetics.html](http://www.nytimes.com/2008/11/30/sports/30genetics.html)> accessed 10 November 2016.

<sup>28</sup> See J Habermas, *The Future of Human Nature* (Polity 2003). Some express particular concern with regard to researching the genetics of intelligence, see D Roberts, 'Can Research on the Genetics of Intelligence Be "Socially Neutral"?' (2015) 45 *Hastings Center Report* S50.

media attention and despite its ultimate failure, had many supporters, most notably well-educated women hoping for smart and talented children.<sup>29</sup>

The motivation behind cognitive enhancement stems not predominantly from the belief in an intrinsic benefit, i.e. the belief that it is simply better to be more intelligent, but rather that it has significant instrumental value in a globalised and competitive world: greater intelligence is associated with greater success, achievement, income, health, happiness and well-being (or all of the above).<sup>30</sup> A close look reveals that this view is far too simplistic; high learning potential often comes at a price.<sup>31</sup> Nevertheless, the media continuously report about child geniuses, and books such as the one written by the ‘Tiger Mother’ Amy Chua,<sup>32</sup> may convince parents that it is all about intelligence, complemented with rigorous education both in school and at home. Cognition thus seems a probable prime candidate as far as enhancement interventions go, with parents likely opting for above-average or even maximum intelligence. These children would probably be not unlike current HLP children.

### **7.3.2 High learning potential**

There is no need to turn to fiction to find children comparable to CE children: HLP children already exist and appear sufficiently similar. Both have advanced cognitive abilities in comparison to their peer group, although it is conceivable that CE children will reach intelligence levels exceeding those currently occurring

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<sup>29</sup> D Plotz, *The Genius Factory: The Curious History of the Nobel Prize Sperm Bank* (Random House 2006).

<sup>30</sup> Although the causal relationship is not always known, see McGue and Gottesman (n 23) S25.

<sup>31</sup> J Freeman, *Gifted Lives: What Happens when Gifted Children Grow Up* (Routledge 2013). There is also evidence that certain mental illnesses, such as bipolar disorder, are linked to intellectual ability: DJ Smith and others, ‘Childhood IQ and Risk of Bipolar Disorder in Adulthood: Prospective Birth Cohort Study’ (2015) 1 *British Journal of Psychiatry* Open 74.

<sup>32</sup> A Chua, ‘Battle Hymn of the Tiger Mother’ (*website*) <[www.amychua.com](http://www.amychua.com)> accessed 10 November 2016.

naturally.<sup>33</sup> It is also likely that characteristics, such as asynchronous intellectual and emotional development,<sup>34</sup> will occur in CE children, unless they are also emotionally enhanced.

The challenges faced by HLP children fall broadly into three groups: (i) those down to the “differentness” in comparison to their peers and the potentially resulting social exclusion; (ii) those related to asynchronous development, where emotional maturity lags behind intellectual ability; and, (iii) those related to boredom and lack of stimulation.<sup>35</sup> All of these affect how a child develops, both in terms of character and (mental) health. Since children spend a large proportion of their time in educational institutions, starting from pre-school to secondary school and beyond, systematised education has a crucial role to play. This is not to say that parental education, taking place at home, is not important, but the state’s role in providing the infrastructure for education is essential in determining a child’s development. Moreover, in the case of CE children, who will only come into existence if the state permits and facilitates such interventions,<sup>36</sup> the state shares responsibility for the child’s healthy development with the parents, as I argue in Section 7.6 below.

Education then becomes a critical component in the lives of both HLP and CE children. Of course this is true for all children, but the current educational system is laid out for the majority of children, and fails to adequately deal with those at the top end of the cognitive ability spectrum. Once CE children become a reality, more children will be affected, which makes it important to review the current protective

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<sup>33</sup> ‘Natural’ is to mean unenhanced for present purposes.

<sup>34</sup> Potential Plus UK, ‘Asynchronous Development’ (*Potential Plus UK*) <[www.potentialplusuk.org/new\\_parents\\_main.php?contentid=326&webid=250#.VWzbl7ymmcM](http://www.potentialplusuk.org/new_parents_main.php?contentid=326&webid=250#.VWzbl7ymmcM)> accessed 10 November 2016.

<sup>35</sup> Freeman (n 31); Potential Plus UK (n 21).

<sup>36</sup> Except any illegally enhanced children, if the state were to seriously restrict or prohibit such enhancements.

mechanisms operating in our legal system in an educational context and to check their suitability for dealing with this new type of enhanced child. This leads to the issue of discrimination.

#### **7.4 Discrimination:<sup>37</sup> (special) education needs in England**

Numerous legal instruments, including various Acts of Parliament and international treaties, are concerned with the rights of children. Internationally, the most relevant document is the United Nations Convention on the Rights of the Child (UNCRC), ratified by the UK on 16 December 1991 and in force from 15 January 1992. Although this has not been incorporated into English law, the calls for this to happen are growing stronger.<sup>38</sup> The UNCRC emphasizes the importance of the best interests of the child and in article 3 states that '[i]n all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.'<sup>39</sup> With regard to education, article 29(1) states, inter alia, that 'States Parties agree that the education of the child shall be directed to: (a) [t]he development of the child's personality, talents and mental and physical abilities to their fullest potential.'<sup>40</sup> In line with this, section 1 of the Children Act 1989 defines the welfare of the child as the paramount consideration.<sup>41</sup> This 'welfare principle' has been criticised as being impractical, because of the effort required for a court to establish what is in a child's best interest – if it were possible at all.<sup>42</sup> In some cases,

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<sup>37</sup> I do not use the term 'discrimination' in the strict legal sense, because my argument is an ethical one based on a general, broader meaning of the term.

<sup>38</sup> See Munby J in *R (Howard League for Penal Reform) v Secretary of State for the Home Department* [2002] EWHC 2497 (Admin).

<sup>39</sup> United Nations Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol. 1577, p. 3.

<sup>40</sup> *Ibid*, article 29.

<sup>41</sup> Children Act 1989 s 1.

<sup>42</sup> S Choudhry and J Herring, *European Human Rights and Family Law* (Hart 2010) 112.

it could also be seen as a ‘backdoor’: a way to sneak in parental or other interests by reference to the child’s best interests.<sup>43</sup> Regardless of those criticisms, there is an unequivocal intention to protect children as a group, because they are deemed vulnerable as they lack capacity to make fully autonomous decisions, and thus require special (legal) protection to ensure their rights<sup>44</sup> are respected and harms to them are prevented. This is important because ‘[f]or a small child, so much depends on adult decisions, the effects of which can last a lifetime’.<sup>45</sup>

Unlike some other groups of vulnerable people, children’s status as vulnerable is usually temporary and the protective mechanisms last only while they are going through their developmental stage, from which they will, all things being equal, eventually emerge as autonomous and healthy adults of legal age.<sup>46</sup> During this process, education is of particular importance: ‘Education is so fundamental to human development and the process of social reproduction that its recognition as a basic human right is uncontroversial’<sup>47</sup> and it is also recognised as ‘the best mechanism for equalising opportunity and promoting social mobility’.<sup>48</sup>

There is nothing in the legal instruments to suggest that a distinction should be made between different groups of children, so in theory all children enjoy equal rights to have their welfare safeguarded by the state.<sup>49</sup> Contrary to this, however, the courts

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<sup>43</sup> Ibid.

<sup>44</sup> There is debate as to whether such strong (legal) rights actually exist, but it appears uncontroversial that children have rights in the weak sense, i.e. interests meriting at least some form of protection.

<sup>45</sup> Freeman (n 31) 222.

<sup>46</sup> Although the point at which one becomes an adult, i.e. a person of legal age, is arguably set arbitrarily.

<sup>47</sup> N Harris, *Education, Law and Diversity* (Hart Publishing 2007) Preface.

<sup>48</sup> Asbury and Plomin (n 9) 128. In comparative studies, both the UK and the US have repeatedly come out to be bad at promoting social mobility. See J Blanden, P Gregg and S Machin, *Intergenerational Mobility in Europe and North America* (London School of Economics, Centre for Economic Performance, 2005).

<sup>49</sup> It is noted that the UNCRC in article 23 does state that disabled children are entitled to ‘special care’.

appear to distinguish between different types of children, for instance on the basis of a child's learning ability, when they interpret the law in a way that restricts access to special needs education to children with a learning disability and explicitly barring access for HLP children.<sup>50</sup> If there is a duty on the part of the state to consider children's welfare, this unequal access to remedies for special educational needs appears unjustified and discriminatory and deserves a closer look.

Until recently, in England, Statements of Special Educational Needs (SEN) were available for children with, inter alia, cognitive impairments. The main legal framework was set out in Part IV of the Education Act 1996. It defines 'Special Educational Needs' as when a child has a 'learning difficulty which calls for special educational provision to be made for him.'<sup>51</sup> With the introduction of the Children and Families Act 2014, which replicates the definition of special educational needs, SEN were replaced with Education, Health and Care (EHC) plans. Existing SEN will be converted to such a plan between now and April 2018 and no new SEN will be issued. Some suggest the new law marks a significant change in the approach to special educational needs, with the focus now being 'very much on "outcomes", in other words, identifying what the child/young person, parents and professionals want the child/young person to achieve in the long, medium and short-term'.<sup>52</sup> There is also emphasis on close cooperation between 'education', 'health' and 'care'.<sup>53</sup> Specifically, the Guidance to the 2014 Act states that:

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<sup>50</sup> See *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14). The previous Guide to SEN specifically excluded gifted children from access to SEN statements; no such exclusion can (yet) be found in the new guidance: Department for Education and Department of Health, *Special Educational Needs and Disability Code of Practice: 0 to 25 years* (2015).

<sup>51</sup> Education Act 1996 s 312.

<sup>52</sup> 'Special Educational Needs and Disability (SEND) in England' (*National Deaf Children's Society*, 2015) <[www.ndcs.org.uk/document.rm?id=10449](http://www.ndcs.org.uk/document.rm?id=10449)> accessed 10 November 2016.

<sup>53</sup> D Silas, *A Guide To The SEN Code of Practice* (Kindle edn, 2015).

All children and young people are entitled to an appropriate education, one that is appropriate to their needs, promotes high standards and the fulfilment of potential. This should enable them to:

- achieve their best
- become confident individuals living fulfilling lives, and
- make a successful transition into adulthood, whether into employment, further or higher education or training.<sup>54</sup>

The wording appears promising but it remains to be seen how ‘an appropriate education’ and ‘fulfilment of potential’ are going to be interpreted. Since the rather vague definition of special educational needs has found its way into the new law unchanged, it would seem to continue to apply to the exclusion of HLP children and their learning difficulties,<sup>55</sup> and will also exclude any future CE children. So far, English courts have applied a categorical exclusion of HLP children on the ground that these have not been identified explicitly in the statute as a category of pupils meriting special protection.<sup>56</sup>

The reason for such exclusion appears to be grounded in policy. In *S, Elias J* referred to ‘obvious social and economic reasons why it might be thought desirable to use resources to help the less able but not the most able’.<sup>57</sup> This view seems to be based on the belief that when resources are limited, other things being equal, it proves more effective to spend those resources on the less able than the most able. However, this perception might be mistaken: as I have already pointed out, HLP children might be

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<sup>54</sup> SEND Code of Practice (n 50) para 6.1.

<sup>55</sup> ‘Children with Special Educational Needs’ (*UK Government*, 2015) <[www.gov.uk/children-with-special-educational-needs/overview](http://www.gov.uk/children-with-special-educational-needs/overview)> accessed 20 April 2016.

<sup>56</sup> *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14) [26].

<sup>57</sup> *Ibid.*

more able in one respect but not in others, potentially making them equally responsive to special needs resources as their so-called less able peers. On more careful analysis this response does not seem to justify the exclusion of HLP children from those resources.<sup>58</sup> There is no further insight into what those reasons might be; perhaps there are also concerns that special education for HLP children would prove too costly. Thinking creatively, it is conceivable that ‘a right to further education’<sup>59</sup> could be established for HLP children, if their cognitive ability were to become a recognised condition meriting treatment. Considering current costs of higher education, this could pose a serious financial challenge to the state, especially if in the future parents elected to have CE children.<sup>60</sup> Whether such policy reasons are sufficient to justify a deviation or even breach of article 29 of the UN Convention, which specifically refers to the ‘development of the child’s personality, talents and mental and physical abilities to their *fullest* potential’<sup>61</sup> (my emphasis) seems questionable. At least from a moral perspective, the extent of any harm or suffering ought to be considered in any decision made about the granting of SEN statements, rather than relying on a blanket ban on the basis of some controversial notion of advantaged characteristic (namely, giftedness).<sup>62</sup> According to Asbury and Plomin, ‘[w]e don’t all have the same talents but we should all have equal opportunities to develop the talents we have’,<sup>63</sup> which seems precisely what article 29 requires and what the Guidance to the 2014 Act promises. However, ‘while gifted children are

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<sup>58</sup> I am grateful to an anonymous reviewer for clarification of this point.

<sup>59</sup> Meaning ‘suitable for advanced educational needs’ rather than ‘further education’ in the conventional sense.

<sup>60</sup> Of course such ‘treatment’ could be excluded from the services covered as a matter of public policy, especially where this was deliberately brought about by parents.

<sup>61</sup> UNCRC (n 39).

<sup>62</sup> It could further be argued that any decision should involve assessment of effectiveness to ensure those children most likely to benefit from educational interventions are identified, irrespective of their categorisation.

<sup>63</sup> Asbury and Plomin (n 9) 30.



accepted as having a need for specialist educational provision the construction of special educational needs precludes their particular difficulties from attracting proper legal recognition'.<sup>64</sup>

Two questions follow: first, what makes particular educational needs so 'special' that they are restricted to only some children; and second, if there is consensus that all children's needs matter,<sup>65</sup> what can be done to remedy this discrimination?<sup>66</sup>

The Education Act 1996 defines special educational needs as having 'a learning difficulty which calls for special educational provision to be made for [a child]',<sup>67</sup> which can either mean a 'significantly greater difficulty in learning than the majority of children of [the same] age'<sup>68</sup> or 'a disability which either prevents or hinders [the child] from making use of educational facilities of a kind generally provided for children of [the same] age in schools within the area of the local education authority'.<sup>69</sup> The Children and Families Act 2014 replicates most of this, with the exception of a reference to 'mainstream schools or mainstream post-16 institutions'.<sup>70</sup> This means that 'while many children with special educational needs will have a disability, the two concepts are distinct and are not made inter-dependent by statute'.<sup>71</sup>

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<sup>64</sup> Harris, *Education, Law and Diversity* (n 47) 328.

<sup>65</sup> Some commentators argue that, although we ought to think about children as individuals with individual needs, when resources are tight priority should be given to those at the bottom end of the cognitive spectrum, because these children will need most help to achieve their potential: see Asbury and Plomin (n 9) 102.

<sup>66</sup> Elias J in *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14) [37], acknowledged that article 14 of the European Convention on Human Rights, the prohibition of discrimination, was engaged with regard to the group of exceptionally gifted children, but held this discrimination to be justifiable: see N Harris, 'Exceptionally Able Children: The Current State of the Law in England' (2015) 16 *Education Law Journal* 175.

<sup>67</sup> Education Act 1996 s 312(1).

<sup>68</sup> *Ibid* s 312(2)(a).

<sup>69</sup> *Ibid* s 312(2)(b).

<sup>70</sup> Children and Families Act 2014 s 20.

<sup>71</sup> Harris, *Law, Education and Diversity* (n 47) 328.

#### **7.4.1 ‘Significantly greater difficulty in learning’**

The wording of the first category seems vague and unhelpful in practice. Specifically, two problems arise: first, the focus appears to be merely on the ability to learn itself, without considering that the learning experience (and thus actual learning) will necessarily include the setting in which it takes place (i.e. the educational institution). Second, there is no justification for the blanket exclusion of a group of children without consideration of the individual learning difficulties of a particular child. This argument is not about best interests of a child but the best interests of HLP and CE children, a group which by definition forms a minority and as such ought to have their (special) needs considered. It might not be possible to offer optimal education for all children but surely we must not exclude an entire group. Accepting that it would be overly idealistic to demand individualised education for every child, the argument becomes one based on discrimination in relation to a group, not in relation to an individual.

Evidence suggests that HLP children can and often will experience difficulties during their school years, and that those difficulties will be related to their HLP. In a recently published opinion piece,<sup>72</sup> the European Economic and Social Committee (EESC) recognised that

It is possible to come across students with high intellectual ability who struggle to succeed at school and fall among those students who do badly, owing for example to a lack of specific educational care or to problems fitting in. It is also far from uncommon to find students with high abilities who feel

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<sup>72</sup> Opinion of the European Economic and Social Committee on 'Unleashing the Potential of Children and Young People with High Intellectual Abilities in the European Union' (own-initiative opinion) [2013] OJ C 76

ostracised or rejected by their peer group, which also increases the likelihood of school failure. Proper detection and care for highly able students is a factor that can and should help to reduce school drop-out rates and increase the percentage of the population with a higher education, which is one of the basic goals of *Europe 2020: A European Strategy for smart, green and inclusive growth*.<sup>73</sup>

The message of this is clear: HLP children are by no means immune from school struggles, but things can be done to ensure that more potential is realised and fewer problems result. The difference between other children and those labelled ‘gifted’ is that only the former have access to special educational needs assistance. In *S*,<sup>74</sup> it was held that exceptional intellectual ability could not be considered a learning difficulty, so it seems unlikely that this will become a feasible option. This leaves the second category, disability. Below I will show that HLP children in some extreme cases could be considered disabled for the purposes of the Education Act. This is a controversial claim to make because of the positive connotation of giftedness and the negative connotation of disability generally.

#### **7.4.2 ‘Disability preventing or hindering the making use of educational facilities’**

At first sight, this appears to be clearer than the previous category, because disability is such a well-known concept. But, although it is the kind of thing we recognise when we see it, the legal definition is not easily understood or applied.<sup>75</sup> As specified

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<sup>73</sup> Ibid, para 3.1.6

<sup>74</sup> *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14).

<sup>75</sup> It is important to note here that there is not the one definition of disability in English law. For present purposes, the relevant definition is offered by the Equality Act 2010. However, this has been criticised for its narrowness and definitional exclusiveness. See A Lawson, ‘Disability and

by the Equality Act 2010, P has a disability if she ‘(a) has a physical or mental impairment, and (b) the impairment has a substantial and long-term adverse effect on P's ability to carry out normal day-to-day activities’.<sup>76</sup>

There is no requirement for an impairment to be classified under the diagnostic manuals DSM-5 or ICD-10. Rather, the effect on a person’s everyday life is what matters most for the purposes of the Act. Guidance on the Act published by the Office for Disability Issues<sup>77</sup> provides some pointers on how this section is to be interpreted. For completeness, I will briefly address all four, before focusing on the most controversial criterion in the present context.

#### 7.4.2.1 *The four criteria*

The four criteria are: impairment, substantial adverse effects, long-term effects, and impact on normal day-to-day activities.

First, ‘impairment’ is not a very strong criterion and the Guidance explicitly states that ‘[i]t may not always be possible, nor is it necessary, to categorise a condition as either a physical or a mental impairment’.<sup>78</sup> The importance of the impairment criterion lies in the link to the adverse effects.

Second, ‘substantial adverse effects’ is to be interpreted as a ‘limitation going beyond the normal differences in ability which may exist among people. A substantial effect is one that is more than a minor or trivial effect.’<sup>79</sup>

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Employment in the Equality Act 2010: opportunities Seized, Lost and Generated’ 40 *Industrial Law Journal* 359.

<sup>76</sup> Equality Act 2010 s 6.

<sup>77</sup> Office for Disability Issues, *Equality Act 2010 Guidance* (HM Government, 2011).

<sup>78</sup> *Ibid*, para A6.

<sup>79</sup> *Ibid*, para B1.

Third, unless the cognitive abilities are only temporarily present, the application of the ‘long-term effects’ criterion seems uncontroversial. HLP as a permanent condition would qualify.

Fourth, in assessing ‘impact on normal day-to-day activities’, such activities explicitly include study and education-related activities.

#### *7.4.2.2 The most controversial criterion*

Out of these criteria, a classification of HLP as a disability seems most likely to fail on the ground of the second criterion, the ‘substantial adverse effects’ requirement. Given that general intelligence, *g*, is normally distributed, there is symmetry in the form of a Bell curve. If there is a requirement for a limitation to ‘go beyond the normal differences’, this would seem to apply to only the very few statistical outliers where severe disabilities are caused by rare genetic mutations<sup>80</sup> and could be seen to imply a medical model of disability. According to Asbury and Plomin:

The genes that influence most of what we do are common variants rather than rare mutations. They are carried by great swathes of the population, by people at every point of the normal distribution. They combine to influence our thoughts, our behaviour, and how society labels us. What has commonly been referred to as disorder or disability (abnormality) is usually just the low-ability end of the normal distribution.<sup>81</sup>

However, this is not how the law is applied. It is not the few rare statistical outliers who benefit from special protection, but all children at the low-ability end of the

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<sup>80</sup> Asbury and Plomin (n 9) 25. A distinction is sometimes made between those with a minor intellectual disability, and those who ‘have suffered some significant and specific neurological trauma (of either genetic or environmental origin)’: McGue and Gottesman (n 23).

<sup>81</sup> Asbury and Plomin (n 9) 25.

normal distribution and we need a reason why the same should not apply at the high-ability end. Arguably, at least those HLP children who show serious ‘symptoms’ (in the sense of having difficulties with their learning) could be included in the category of disabled people under the Equality Act 2010, which would entitle them to the same protection as children with recognised (learning) disabilities.<sup>82</sup>

#### 7.4.2.3 *A social model of disability?*

The Equality Act 2010 provides an opportunity for a finding of a disability by providing that

[A] person must have an impairment that meets the Act’s definition of disability, or be able to establish that any less favourable treatment or harassment is because of another person’s disability or because of a perceived disability.<sup>83</sup>

This provision appears to introduce a social model of disability, where there is no prerequisite of a recognised medical condition but rather the social implications of a characteristic of a person are considered. In the words of Neville Harris:

The social model [...] takes account of the social context within which the disability is experienced. For that reason, there is greater scope for exceptional ability to be constituted, at least in theory, as a disability under the social model, since in the social setting of a mainstream school setting it has the potential to place those with such ability at a relative disadvantage compared to a majority of others in relation to the benefits accrued from the

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<sup>82</sup> This would include the group of so-called ‘twice-exceptional’ children. For details see JW Gilger and GW Hynd, ‘Neurodevelopmental Variation as a Framework for Thinking About the Twice Exceptional’ (2008) 30 Roper Review 214.

<sup>83</sup> Equality Act 2010 Guidance (n 77), part 1, para 8.

receipt of teaching. It is clear that, certainly in the education context, the way that disability is dealt with under international legal instruments concerned with the rights of children and young people is broadly consistent with the social model of disability. The UNCRC does not specifically define disability but is orientated towards a goal of maximising the ‘active participation’ of disabled children ‘in the community’ and in having effective access to education, health care and other services ‘in a manner conducive to the child’s achieving the fullest possible social integration and individual development, including his or her cultural and spiritual development.’<sup>84</sup>

Given the frequent bullying teachers and parents of HLP children report,<sup>85</sup> and the reactions of teachers and peers to such children,<sup>86</sup> it could be argued that the criterion of less favourable treatment because of a perceived disability is fulfilled.<sup>87</sup> This is convincing evidence, which supports the argument for a finding of disability for at least some of the extreme cases of HLP children. Critics of this claim might contend that this would only be problematic whilst there are few affected children, and that as a result, the socially disabling situation would be ameliorated with the emergence of CE children as highly intelligent children would no longer constitute a minority.

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<sup>84</sup> Harris, ‘Exceptionally Able Children: The Current State of the Law in England’ (n 66) 179-80.

<sup>85</sup> Potential Plus UK, ‘Understanding the Challenges Faced by Parents and Carers’ <[www.potentialplusuk.org/professionals\\_main.php?contentid=376&webid=368](http://www.potentialplusuk.org/professionals_main.php?contentid=376&webid=368)> accessed 10 November 2016.

<sup>86</sup> Freeman (n 31) 297.

<sup>87</sup> Potential Plus UK, ‘Understanding the Challenges faced by Parents and Carers’ (n 85). Evidence suggests that gifted children have a greater risk of suffering from anxiety disorders, partly because of asynchronous development, when emotional, physical, and social development lags behind cognitive development. Further evidence indicates a correlation between anxiety and becoming a victim of bullying. See GE Harrison and JP Van Haneghan, ‘The Gifted and the Shadow of the Night: Dabrowski’s Overexcitabilities and Their Correlation to Insomnia, Death Anxiety, and Fear of the Unknown’ (2011) 34 *Journal for the Education of the Gifted* 669; L Arseneault, L Bowes and S Shakoor, ‘Bullying Victimization in Youths and Mental Health Problems: “Much Ado About Nothing”?’ (2010) 40 *Psychological Medicine* 717.

There are at least two counterarguments to this: first of all, unless CE became so widespread and applied in a way that the vast majority of children would reach similarly high cognitive ability levels, there will by definition always be top and bottom ends of the spectrum. Adjusting the educational system and societal perceptions of disabilities would thus result merely in a shift in who becomes socially disabled – children currently deemed of ‘normal’ intelligence would suddenly be considered cognitively impaired, whilst the current ‘gifted’ would potentially appear ‘normal’. It appears utopian to believe all children will benefit from CE interventions, and that CE will result in more uniform levels of cognitive ability. Interventions might not work equally well in all children, or not at all in some, and as long as parental autonomy is preserved, some parents might decide against CE for their children even in the light of state incentives. The second reason is that not all negative aspects of HLP are socially induced. Asynchronous development can be problematic in its own right, because young children might be able to understand some situations cognitively but not be capable of handling them emotionally.<sup>88</sup> Furthermore, general intelligence levels have been found to correlate with the development of bipolar disorder in adulthood,<sup>89</sup> as has high sensory sensitivity.<sup>90</sup>

This means a failure to protect these children and to offer them less support than their less intellectually-able counterparts remains discriminatory. There is an unjustified asymmetry in the law, because by default no special educational provision is made for HLP children as a group, despite them experiencing similar educational and

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<sup>88</sup> For examples see MJ Morelock, ‘Giftedness: The View from Within’ (1992) 4 Understanding Our Gifted 1; W Roedell, ‘I Just Want My Child to Be Happy’ (1988) 1 Understanding Our Gifted 1.

<sup>89</sup> Smith and others (n 31).

<sup>90</sup> Harrison and Van Haneghan (n 87).



social problems as their peers with recognised learning disabilities. Too much seems to count for less than too little – and this will likely affect CE children to the same extent.

Absurdly, it appears advantageous to be labelled a disadvantaged child. For parents, to ensure their child receives the best possible education and health treatment, it suddenly becomes desirable to obtain a diagnosis of some sort.<sup>91</sup> This will mean access to support and places a much higher burden on Local Education Authorities and schools to consider the particular needs of the individual child, as well as opening up the possibility for receiving financial support. The incentive for parents to obtain a diagnostic label for their children would increase with any improvements in special needs provisions being made.<sup>92</sup> Although this might equalise the treatment of children by attaching the same label to all, it is not a satisfactory solution for parents, children, or schools. So is a new category for CE children needed?

### 7.4.3 Cognitively enhanced children

In *S, Elias J* referred to the absence of a category of high-ability pupil as an intended exclusion of HLP children when it comes to special needs education.<sup>93</sup> In light of this, it appears unlikely that such a category will be created any time soon; however, there might be a stronger case once CE children emerge on the educational horizon

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<sup>91</sup> There are recognised medical conditions, which share many of the typical symptoms of high cognitive ability, and which frequently occur concurrently. Examples include Asperger's autism, and attention-deficit/hyperactivity disorder. N Verkuijl, M Perkins and M Fazel, 'Childhood Attention-Deficit/Hyperactivity Disorder' (2015) 350 *British Medical Journal* h2168.

<sup>92</sup> The notion of disability has recently been expanded in the European context: obesity was recognised as a disability by the European Court of Justice in Case C-354/13 *Fag og Arbejde (FOA) (on behalf of Karsten Kaltoft) v Kommunernes Landsforening (KL) (on behalf of the Municipality of Billund)* ECLI:EU:C:2014:2463, and a woman in France was awarded disability benefits for electrosensitivity, despite this not being a formally recognised disease: 'Première Reconnaissance en Justice d'un Handicap dû à l'Électrosensibilité' Sciences et Avenir <[www.sciencesetavenir.fr/sante/20150825.OBS4707/premiere-reconnaissance-en-justice-d-un-handicap-du-a-l-electrosensibilite.html](http://www.sciencesetavenir.fr/sante/20150825.OBS4707/premiere-reconnaissance-en-justice-d-un-handicap-du-a-l-electrosensibilite.html)> accessed 10 November 2016.

<sup>93</sup> *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14) [26].

in significant numbers. Although this might be a pragmatic solution, there is a more fundamental problem with categories and labels in the present context.

First of all, as Neville Harris argues, it is unrealistic to identify clear dividing lines:

The idea of a clear and rigid divide between children who do or do not have special educational needs meets the demand for certainty that surrounds the notion of a legal duty, but the House of Commons Education and Skills Committee has found it to be an ‘arbitrary distinction that leads to false classifications’, and, as Monk argues, the legal construction of a ‘special educational need’ can contribute to the over-simplification of a complex issue.<sup>94</sup>

Arguably, it might suffice to know which children are cognitively enhanced and introduce the category of CE children as requiring special support. However, this assumes the group of CE children to be homogeneous in their educational needs, which might turn out to be overly simplistic depending on the actual characteristics of CE children (which we cannot know yet).

Second, labelling can and often does have a negative impact on children.<sup>95</sup> Studies, such as Joan Freeman’s longitudinal studies with HLP children into adulthood, show that expectations attached to certain labels affect the development and ultimately the outcome of a child’s life.<sup>96</sup> ‘Cream’ does not always rise to the top of the milk, and ‘the road to excellence’ can be very difficult and will depend on numerous factors, so

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<sup>94</sup> Harris, *Education, Law and Diversity* (n 47) 327.

<sup>95</sup> For example by self-pathologising: see C Stevenson, ‘Self-Pathologizing and the Perception of Necessity: Two Major Risks of Providing Stimulants to Educationally Underprivileged Students’ (2016) 16 *The American Journal of Bioethics* 54.

<sup>96</sup> Freeman (n 31) 297. Incidentally, the same applies to children expected to do less well than their cognitive potential would suggest, such as children from low-income or low-education backgrounds.

an expectation which equates potential with success is not merely mistaken but also harmful to the growing sense of identity of a child.<sup>97</sup> For CE children, such expectations would always be looming over their lives, since their parents would have been at least partially motivated by those expectations to agree to cognitive enhancement of their offspring in the first place. Knowledge of one's status as exceptional in cognitive potential will thus be unavoidable, with all its repercussions for the child. This by itself could be argued to be disabling, at least according to a social model of disability.

#### **7.4.4 Taking stock**

The preceding discussion highlights the problems with the categories laid down by the Equality Act. Any attempt to classify educational needs as 'special' is unsatisfactory in practice and will lead to significant injustice in many cases. Asbury and Plomin argue that special educational needs ought not to be assessed simply by reference to others or on the basis of their underlying cause, because:

[A]ll children experience special educational needs at some point. Their difficulties may be temporary or permanent, caused by genes or environment, but they deserve an immediate, sympathetic, personalized response for as long as it takes to address the problem.<sup>98</sup>

It might then be time to rethink the line-drawing and labelling exercise we have become so used to with regard to school children, especially if we consider the extent of the possibilities of cognitive enhancement. Imagine the situation of children with 'superpower' hearing or vision, who will be so distracted in a normal learning

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<sup>97</sup> Ibid 10.

<sup>98</sup> Asbury and Plomin (n 9) 112.

environment that it will have a disabling effect on them.<sup>99</sup> At present, they would by default be excluded from any SEN support due to their belonging to a particular group. What is thus needed is a truly inclusive approach to education, one which will ensure an appropriate education and fulfilment of potential of all existing and future types of children, just as the Children and Families Act Guidance suggests. Before proposing how this could be implemented, I will address the second main issue, the welfare of CE children and the role and responsibility the state has in this.

### **7.5 Welfare concerns: the link between health and education**

There is abundant literature, including numerous studies, on the effect of education on health, income, and social status. Usually the focus is on engagement in unhealthy lifestyles, such as smoking, alcohol abuse, and drug-taking; or on chronic diseases, such as obesity and diabetes.<sup>100</sup> These show that better education tends to lead to greater health, decreased morbidity, and increased well-being, but they illuminate only one aspect of the effect of education on health and neglect another equally important aspect: the impact of the educational setting and thus the social environment on the health of a child in its development. Education, at least when institutionalised, is more than the transferral of knowledge and teaching of technical skills – it provides the environment in which identities are formed and personalities are shaped, and the experiences on the journey from kindergarten through secondary

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<sup>99</sup> Coincidentally, high sensory sensitivity frequently affects HLP children: see Harrison and Van Haneghan (n 87).

<sup>100</sup> See DM Cutler and A Lleras-Muney, 'Education and Health: Evaluating Theories and Evidence' National Bureau of Economic Research Working Paper No 12352 <[www.nber.org/papers/w12352](http://www.nber.org/papers/w12352)> accessed 20 November 2016; CE Ross and C-I Wu, 'The Links between Education and Health' (1995) 60 *American Sociological Review* 719.

school will influence the psychological set-up of a child, both positively and negatively.

### **7.5.1 HLP and CE children**

Whilst the importance of the educational environment applies to all children, it becomes even more critical for children who are somehow ‘different’, in the sense that they do not form part of the majority group.<sup>101</sup> Examples are ethnic minorities, the economically disadvantaged, but also children at the extremes of the cognitive ability spectrum. The educational system in England<sup>102</sup> focuses on the majority group, with special provision made for those at the bottom end of the Bell curve, aimed at mitigating at least some disadvantages. Nothing comparable has been done at the upper end of the spectrum, despite convincing evidence<sup>103</sup> and expert opinion<sup>104</sup> that there is a need for special educational provisions for HLP (and thus CE) children. That education is health-affecting because of its direct link to the physical, mental, and cognitive development of children also appears to have been legally recognised, for instance, in the Children Act 1989,<sup>105</sup> as well as through the recent special educational needs reforms, which changed the previously granted ‘special education needs statements’ into ‘education, health and care plans’.

Given this link between health and education, an argument in favour of considering the needs of HLP (and CE) children based on prevention emerges.

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<sup>101</sup> Freeman (n 31) 263: ‘Bullying is associated with being exceptional in some way. It happens to children who do not fit in, when power is uneven.’

<sup>102</sup> And in many other Western societies: See CJ Russo and DY Ford, ‘Education for Gifted Students in the United States: An Area in Need of Improvement’ (2015) 16 *Education Law Journal* 188.

<sup>103</sup> See Freeman (n 31) 292, who in 1998 was asked by the UK Government’s Office for Standards in Education to report all the international scientific research on gifted children, and who pleads for education authorities to make provision for the learning needs of gifted children.

<sup>104</sup> Council of Europe Parliamentary Assembly, *Education for Gifted Children* (Recommendation 1248, 1994).

<sup>105</sup> ‘Welfare of the child’ in s 1 of the Children Act 1989, which in subsection (3) refers to ‘physical, emotional and educational needs’ as relevant factors to be considered by the court.

### 7.5.2 Healthy development

Education can act as a prevention mechanism for many health problems, not merely through the conventional approach of teaching about healthy living and life-style choices, but also by providing an environment conducive to the healthy development of children. This includes both positive factors, such as the provision of encouragement and challenge, and negative factors, such as the absence of bullying<sup>106</sup> and social disapproval. An appropriate educational setting could thus be comparable to an immunisation programme, because it equips children with the best chances of leading a healthy life by preventing mental harm.

Although this again applies to all children, there is a difference with regard to HLP children in that their particular needs (as a group and as individuals) are inadequately met in an educational system designed to cater for the Bell curve mid-section. Moreover, their exceptionality often leads to negative reactions from peers<sup>107</sup> and teachers. So, although the ‘gifts’ of themselves are not usually the cause of any emotional problems experienced by HLP children:

The excitement of gifted-level discovery is viewed as excessive, their high energy as hyperactivity, their persistence as nagging, their imagination as not paying attention, their passion as being disruptive, their strong emotions and sensitivity as immaturity, and their creativity and self-directness as oppositional.<sup>108</sup>

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<sup>106</sup> A great cause of upset in a school environment is bullying, which is rather commonplace. See HA Ball and others, ‘Genetic and Environmental Influences on Victims, Bullies and Bully-Victims in Childhood’ (2008) 49 *Journal of Child Psychology and Psychiatry* 104, who found that approx. 25% of children at age nine to ten years were victims of moderate to severe bullying.

<sup>107</sup> Freeman (n 31) 263.

<sup>108</sup> *Ibid* 297.

This negative reaction to what is essentially the ‘nature’ of an HLP child can seriously risk the psychological health of a child in its development, as it affects self-confidence and self-image. The result might be anxiety or depression, both known to be caused by a feeling of low self-worth.<sup>109</sup> In contrast, if the schooling and educational experience for current HLP and future CE children is carefully monitored and necessary adjustments are made, risks to mental health can be minimised – similar to a ‘mental vaccine’ by teaching these children that their differences are merely in (cognitive) ability and not in value as persons.<sup>110</sup> Besides the benefit for individuals, there is also a wider, public interest argument based on cost.

### **7.5.3 Economic argument**

A common argument against any special educational measures for HLP children is cost. Whilst it is perceived as our duty to compensate for obvious physical or mental disadvantages of, inter alia, children with disabilities, there is no equivalent emotion with regard to HLP children. A ‘gift’ is perceived as a privilege despite the fact that being born with high cognitive potential does not imply achievement or success; there are plenty of examples where potential was not used well, for the persons themselves or society.<sup>111</sup>

Concerns expressed about the potential cost of catering for a currently small group of children are unconvincing for two reasons. First of all, in the current technological era, tailoring education to minority groups or even individual children has become

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<sup>109</sup> Harrison and Van Haneghan (n 87).

<sup>110</sup> AS Masten and JD Coatsworth, ‘The Development of Competence in Favorable and Unfavorable Environments: Lessons from Research on Successful Children’ (1998) 53 *American Psychologist* 205.

<sup>111</sup> Freeman (n 31) 10.

both manageable and affordable,<sup>112</sup> and secondly, if future health costs arising from inadequate education and educational settings for HLP and CE children are taken into account, the argument in favour of investing in high-level education for those children becomes strong in economic terms, in addition to the previous ‘preventative medicine’ argument. The more widespread CE becomes, the stronger the cost argument will become. The financial benefits for a state of investing in education and training have long been recognised, for instance by the UN Committee on Economic, Social and Cultural Rights and the Department for Work and Pensions in the UK.<sup>113</sup>

Having established the link between education and health, the impact inadequate educational provision can have on HLP and by analogy on CE children has hopefully become clear and the argument that special educational measures ought to be taken for those more cognitively able children has been sufficiently substantiated. It has been demonstrated that the state has at least an economic interest in ensuring the well-being of all children. Prevention, however, is only one side of this: productivity another. This leads to the final part, namely the role of the state and the question of responsibility for the welfare of CE children.

## **7.6 The role of the state and the question of responsibility**

As mentioned above, the most promising CE technologies appear to be genetic ones, such as PGD and gene editing. Depending on the technology used, issues relating to the treatment of embryos as regulated by the HFE Acts<sup>114</sup> might thus arise, meaning that any intervention would need to be carried out in a licensed clinic, which would

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<sup>112</sup> Asbury and Plomin (n 9) 150.

<sup>113</sup> Harris, *Education, Law and Diversity* (n 47) 29.

<sup>114</sup> Human Fertilisation and Embryology Act 1990; Human Fertilisation and Embryology Act 2008.



be governed by the Human Fertilisation and Embryology Authority (HFEA). Such clinics need to comply with section 13(5) of the 1990 Act, as amended by section 14(2)(b) of the 2008 Act, which states that:

A woman shall not be provided with treatment services unless account has been taken of the welfare of any child who may be born as a result of the treatment (including the need of that child for supportive parenting), and of any other child who may be affected by the birth.

Failure to do so would lead to a loss of the licence. More importantly, however, if there were clear disbenefits of cognitive enhancement, then if section 13(5) were applied, there would be no licences granted for such interventions. As the law stands, some probable methods of genetic enhancement are prohibited: under section 3ZA of the 1990 Act it is illegal to implant an embryo with altered DNA or to add cells to an embryo and section 4 prohibits the use of nonhuman material or the implantation of nonhuman embryos. This leaves the possibility of embryo selection, which might already be occurring, for instance by screening out fragile X syndrome embryos, and which might be expanded once more of the intelligence-related DNA units (single nucleotide polymorphisms) have been identified.<sup>115</sup>

If the state permits such interventions, for instance through the granting of licences under the HFEA, it can be said to be acting at least as a facilitator. It is quite possible, however, that the state will play a much more active part in promoting CE in children. Whilst most of the debate surrounding enhancement focuses on regulating a private market, Buchanan cautions that ‘it is naïve and dangerous to

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<sup>115</sup> For an overview of the current status of genetic prediction with regard to intelligence see E Turkheimer, ‘Genetic Prediction’ (2015) 45 *Hastings Center Report* S32.

assume, as almost all participants in the enhancement debate do, that the state at most will play the role of restraining individual choices regarding enhancements'.<sup>116</sup> Productivity-increasing measures are of utmost interest to the state and in the 'public interest', and as such, CE will fall within the same category as vaccines, basic health care, and education – measures provided and incentivised by the state not merely for a love of its citizens but because of their productivity-increasing effects.<sup>117</sup> Given this dual role of the state – as regulator and potential beneficiary – the question arises as to what this means in terms of responsibility. Customarily, the concept of parental responsibility places the burden of ensuring the well-being of children on parents<sup>118</sup> but the state necessarily shares in this.

### **7.6.1 State responsibility**

Not merely with regard to education, the state acts 'as an agent for the parent fulfilling a basic moral and legal duty'.<sup>119</sup> As such, there exist parallel duties to 'ensure that a child receives an "efficient" education "suitable" to his or her "age, ability and aptitude"'.<sup>120</sup> As argued above, this duty is not adequately fulfilled in the context of HLP children. By expanding section 312 of the Education Act 1996 (as replicated by section 20 of the Children and Families Act 2014), the categorical exclusion of HLP (and CE) children from gaining access to special protection measures could be remedied. So far, an attempt to do so on the basis of

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<sup>116</sup> A Buchanan, 'Enhancement and the Ethics of Development' (2008) 18 *Kennedy Institute of Ethics Journal* 1, 12.

<sup>117</sup> *Ibid* 3.

<sup>118</sup> Education is also regarded "a primary duty of parenthood": see Education Act 1996 s 7 and Harris, *Education, Law and Diversity* (n 47) 17.

<sup>119</sup> Harris, *Education, Law and Diversity* (n 47) 42.

<sup>120</sup> *Ibid* and Education Act 1996 s 7.

discrimination was struck down in *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council*.<sup>121</sup>

Nevertheless, absent any major legislative changes, this option seems most feasible and realistic in the short term. There are plenty of opportunities to protect all children, including those not currently classed as disabled or as having special educational needs, assuming there is a willingness to do so. The courts so far have shied away from a more creative interpretation of the law and there are undoubtedly political and policy reasons for not expanding the class of SEN; however, if we are serious about the welfare of the child, there is no justification for a refusal to assess needs on an individual basis and relying on arbitrary or politically-motivated groupings.

### **7.6.2 Parental responsibility**

Section 3 of the Children Act 1989 defines parental responsibility as all the rights, duties, powers, responsibilities and authority which by law a parent of a child has in relation to the child and his property.<sup>122</sup> However, the concept lacks a consistent meaning, with courts and commentators struggling to explain the term.<sup>123</sup> The Children and Young Persons Act 1933 makes it an offence to mistreat children.<sup>124</sup> This includes wilful assaults, ill-treatment, neglect, abandonment, and exposure to unnecessary suffering or injury to health.<sup>125</sup> In a recent parliamentary debate,<sup>126</sup> the question of whether the Act should be expanded to include emotional neglect was

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<sup>121</sup> *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14).

<sup>122</sup> Children Act 1989

<sup>123</sup> J Herring, *Family Law: Issues, Debates, Policy* (Routledge 2001) 133.

<sup>124</sup> Children and Young Persons Act 1933 s 1.

<sup>125</sup> *Ibid* s 1(1).

<sup>126</sup> “‘Cinderella’ emotional cruelty law considered’ (*BBC News*, 31 March 2014) <[www.bbc.com/news/uk-26814427](http://www.bbc.com/news/uk-26814427)> accessed 10 November 2016. This led to the Serious Crime Bill 2014.

addressed and the Serious Crime Act 2015 now amends the 1933 Act to explicitly include psychological suffering.<sup>127</sup> Time will tell what the implications are, if any, for parenting.

Parental decision-making is not unrestrained. If there are concerns about the welfare of a child, a court is allowed to make a care or supervision order under section 31(2) of the Children Act 1989, provided there is (or is likely to be) significant harm to the child, attributable to the care given to the child. For the purposes of this section, harm means ill-treatment or the impairment of health or development, which includes physical, intellectual, emotional, social or behavioural development, and physical or mental health. *In Re O (A Minor)*<sup>128</sup> it was held that, when deciding if a child is suffering harm, a comparison must be made with what could be expected of a similar child of the same intellectual and social development. The reference to intellectual development is interesting, because it could be interpreted to mean HLP/CE children should be compared to other comparable HLP/CE children – and not to average children – when it comes to establish harm suffered.<sup>129</sup>

Given that parents are legally and morally responsible for the welfare of their children, the question arises whether any additional needs of a child due to enhancements deliberately chosen by parents could give rise to a corresponding parental duty to address those needs, however cumbersome. Considering the suggestion to extend the criminal law in the area of child neglect to include psychological suffering, it could be argued that enhancing children to make them more intellectually capable means a case could be made against parents who fail to

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<sup>127</sup> Serious Crime Act 2015 s 66: ‘whether the suffering or injury is of a physical or a psychological nature’.

<sup>128</sup> *Re O (A Minor) (Care Order: Education: Procedure)* [1992] 4 All ER 905.

<sup>129</sup> With the possible emergence of CE children, this could pose a serious challenge if extreme outliers, i.e. children with ‘super-abilities’ were to be created.

adequately ‘feed’ their children intellectually. The head of Ofsted, Sir Michael Wilshaw, has recently called for fines for parents who do not read to their children.<sup>130</sup> Arguably, the case for applying such fines to parents of CE children is even stronger. However, the appropriateness of the criminal law for addressing inadequate parenting is questionable, not least because there is no evidence that it would prove effective. Judging by the courts’ decisions to date, unless legislative changes are made to the effect, it seems doubtful that any current legislation will be interpreted in a way to ‘enhance’ parental responsibility in cases of CE children. The law directly does little to intervene with harmful parenting choices, unless the child is suffering significant enough harm to justify state intervention; and as Herring points out, ‘the courts have suggested that legal procedures should not be used to resolve day-to-day issues relating to children’.<sup>131</sup>

In summary, an expansion of the legal concept of parental responsibility might be a way of improving the situation of HLP and future CE children, but all things considered, it is unlikely that the courts would be willing to interpret the law in a sufficiently broad way. Furthermore, it is unlikely that all parents will be capable of meeting all the needs of their CE children without the help of the state, which also stands to benefit significantly from the existence of such highly able children.<sup>132</sup> It is thus argued that the state not only shares in the responsibility of parents, but in the case of CE children will have to assume ‘enhanced’ responsibility for the welfare of those children. One approach to do this and to remedy the current unfairness would be to rework the concept of inclusion.

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<sup>130</sup> ‘Schools should Fine “Bad Parents”, says Ofsted Chief’ *The Guardian* (17 June 2014) [www.theguardian.com/education/2014/jun/17/schools-fine-parents-ofsted-michael-wilshaw](http://www.theguardian.com/education/2014/jun/17/schools-fine-parents-ofsted-michael-wilshaw) accessed 17 November 2016 .

<sup>131</sup> Herring (n 123) 148.

<sup>132</sup> If there were no expected benefits, the moral permissibility of CE would be in question.

### 7.6.3 Inclusion

There is no reason why inclusion should remain merely a buzzword;<sup>133</sup> if it were applied to all children, the concept could gain in substance and meaning. HLP children should not be categorically excluded from the protections of education discrimination law, but their special educational needs should be identified and addressed in the same way as for children with learning difficulties or disabilities.

Three aspects of child development research are of particular relevance in this context. The first is the process of learning and its importance for healthy child development. Praising children for ability rather than effort encourages a ‘fixed mindset’, which harms their ability to achieve their full potential.<sup>134</sup> They will become reluctant to risk failure.

Research with children of all ages – even toddlers – tends to show that children who are praised for ability rather than hard work become fearful of failure and nervous of taking risks, and that this in turn inhibits their progress.

Praise for ability actually makes them less confident and less successful.<sup>135</sup>

In a one-size-fits-all educational system, the most able students often struggle to find sufficiently challenging tasks.<sup>136</sup> Praise for the successful completion of any given exercise will thus by default be for ability rather than effort – because no or very little effort is required in the first place. A failure to challenge HLP children could lead to a lack of confidence and anxiety, and depending on its extent this could well

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<sup>133</sup> CJ Russo (ed) *The Legal Rights of Students with Disabilities: International Perspectives* (Rowman & Littlefield Publishers 2011) 7.

<sup>134</sup> Asbury and Plomin (n 9) 155.

<sup>135</sup> Ibid 98.

<sup>136</sup> ‘While the law has long sought to accommodate the diverse needs of children with special educational needs, there is also, increasingly, a more general rejection of the “one size fits all” approach to educational provision, particularly in the context of secondary education.’ Harris, *Education, Law and Diversity* (n 47) 10.

mark the beginning of an actual mental illness. This would also seem contrary to the proclaimed goal in the Guidance to the Children and Family Act 2014, which refers to ‘an appropriate education’ as one which enables children to ‘become confident individuals’.<sup>137</sup> Clearly, there is more to the argument of addressing the needs of HLP children than ideological conviction.<sup>138</sup> Standardised treatment will not do; just as it does not for children with cognitive impairments: ‘Equality of opportunity requires diversity of opportunity.’<sup>139</sup>

The second aspect relates to positive influences on academic achievement. Peer relationships have been highlighted as a potential source of non-shared environmental influence. Behavioural genetic research into friendship and bullying suggest that these are directly relevant to how well children perform at school.<sup>140</sup> A correlation between anxiety and the risk of becoming a victim of bullying at school has also been revealed.<sup>141</sup> Combined with evidence that HLP children are frequently the victims of bullying,<sup>142</sup> there are reasons to believe that they are at least as vulnerable and deserving of special consideration as children with learning disabilities.

Finally, another important aspect is basic genetics. The genes, which determine whether we are good at something or not, are the same for all of us.

The genes that affect mathematical ability of a mathematics professor and a young person struggling to pass a basic mathematics exam are the same, albeit not necessarily in the same versions (alleles). This makes an enormous

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<sup>137</sup> SEND Code of Practice (n 50) para 6.1.

<sup>138</sup> Asbury and Plomin (n 9) 156.

<sup>139</sup> Ibid 146.

<sup>140</sup> Ibid 121.

<sup>141</sup> Arseneault, Bowes and Shakoor (n 87); Harrison and Van Haneghan (n 87).

<sup>142</sup> See ‘Potential Plus UK’ website (n 21).

difference to how – and whether – we diagnose special educational needs, at the levels of both struggling and gifted children.<sup>143</sup>

There is no basis on which to ground a differential treatment of the two extreme ends of the cognitive spectrum, at least not one based on genes. In addition, the dwindling popularity of a purely medical model of disability in favour of a social model, suggests inclusion should be properly understood as covering all children, because HLP children might be exposed to an environment in which they might be as ‘disabled’ due to social factors as their peers at the opposite end of the Bell curve.<sup>144</sup> They might find themselves in an educational setting that turns out to be disabling, but the lack of intrinsic (medical) disability does not mean their needs should be trivialised. And they need not be, because there are several ways in which inclusion policies could be applied to HLP children – and to CE children. Support in the educational context is already available; it just needs to be made available to all groups of children.

Unfortunately, the current refusal to think about special educational needs in broader terms<sup>145</sup> leads to the undesirable situation where parents will be pushed to do everything they can to get their children labelled, as discussed above, in order to access support for their children’s needs. The alternative solution would be an expansion of our current notion of disability towards a fully social model. Based on the available evidence, this could then be applied to protect HLP and CE children

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<sup>143</sup> Asbury and Plomin (n 9) 142.

<sup>144</sup> For an account of how mental health law lags behind this development, see B Clough, ‘“People like That”: Realising the Social Model in Mental Capacity Jurisprudence’ (2015) 23 *Medical Law Review* 53.

<sup>145</sup> For a detailed analysis of the reasons for the ambivalence towards giftedness and gifted education, see RF Subotnik, P Olszewski-Kubilius and FC Worrell, ‘Rethinking Giftedness and Gifted Education: A Proposed Direction Forward Based On Psychological Science’ (2011) 12 *Psychological Science in the Public Interest* 3.



alike.<sup>146</sup> I would hope the need for labelling or (further) medicalisation of normally occurring genetic differences would decrease rather than increase.

First, such an approach would be unlikely to be effective, because it would not involve a proper consideration of individual educational needs but rather offer yet another standardised solution for an expanded group of disabled children. A label of disability would not make the children in this group any more similar than they previously were, and as Asbury and Plomin suggest, it is diversity of opportunity which is needed. It is about setting an educational agenda which can provide appropriate challenges at each level of cognitive ability.

Second, if disability were to be the pathway into access to special education provision, this might provide an incentive to get children labelled regardless of their actual ability. Conditions might be ‘made up’ by parents, or exaggerated, which are not there (yet). Again, this would not be conducive to meeting HLP children’s needs. Although there might be advantages to labelling in some cases on an individual level, it could hinder the development of an environment of tolerance and acceptance of individual differences both at a school and a societal level. As Asbury and Plomin remark:

Well, for one thing being labelled as having a medical disorder, a bona-fide learning disability, opens up more services to families and removes the stigma associated with just not being very good at something. As a society we believe that disability is more acceptable than low ability.<sup>147</sup>

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<sup>146</sup> Popularity of this option amongst disability rights advocates is doubtful.

<sup>147</sup> Asbury and Plomin (n 9) 48.

Finally, I do not think such an approach would be efficient. It would require significant bureaucratic effort to assess large numbers of children and to decide on a case by case basis, which children qualify.

## **7.7 Conclusion**

It is striking how illogicality is accepted when it comes to discussions about giftedness. On the one hand, we are told all children are equal, that they should be loved and cared for in way that is adequate for them as individuals. Yet when a child turns out to be ‘gifted’, we are asked to withdraw precisely this individualised support to compensate for what is perceived as an (unfair) genetic advantage. This makes no sense and disadvantages children who through no fault of their own are born with a somewhat greater potential for learning than others. The current unwillingness to see this unfairness will eventually have to be faced when CE children start appearing in our world. Whether things will then improve for HLP and CE children remains to be seen, but at least those disapproving of genetic difference will have someone to blame for the peculiarities of those children: parents, who made the decision to enhance, and the state, for permitting such interventions.<sup>148</sup>

So where do we go from here? In an ideal world, we would establish an educational system, which does justice to all children’s educational and developmental needs, without a requirement for labelling or medicalization of normally occurring (genetic) differences. However, since Utopia is a long way from here, I suggest we are better off addressing the current disequilibrium in the law by removing prejudices towards

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<sup>148</sup> Assuming the state to be involved in the creation of CE children. An interesting question is how the law would reconcile treating HLP as a disability, given the prohibition of preference selection for serious physical or mental disability under s 13(9) of the HFEA 1990.

children with the most cognitive potential and accepting them as equally vulnerable as the least intellectually able children. This will help to avoid discrimination across the cognitive spectrum, by preventing the victimisation of those at the bottom end and the false expectations<sup>149</sup> and wrongful assumptions about achievement, success, and well-being of those at the top end.

I do not wish to deny that in many cases priority should be given to those children with lowest cognitive ability, as these will struggle the most. Unfortunately, resources allocated to education are tighter than they should be, given the importance of education for a flourishing society – not least because education is strongly related to both mental and physical health, as I explained at the outset. Again to quote Asbury and Plomin, ideally:

[I]n a country with the resources and the will to take it further, the fact of genetically influenced individual differences begins to come to play for everyone, not just those who struggled to fill their basic toolkits. Once pupils have been equipped with these basic skills they need to function effectively in the world, the focus must switch to drawing out individual potential. In this way schools can promote individual fulfilment and achievement and prepare cohorts of young people who know their talents and have been educated to use them. Society will surely benefit from generation after generation of young people with a firm grasp of core skills underpinning a wide range of specialist abilities and interests. We

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<sup>149</sup> Unleashing the Potential (n 72) para 3.2.6.

would predict positive impacts on health, law and order, employment, and the economy.<sup>150</sup>

Countries such as Finland demonstrate that there are new and innovative ways of approaching education,<sup>151</sup> which will likely result in better overall educational attainment and a healthier society.<sup>152</sup>

The point is often made that this would prove too costly. However, as argued above, the healthy development of children necessarily passes through educational institutions, which makes it an economic priority to invest in all children receiving an appropriate education - as well as a moral one. The recent changes with regard to psychological harm indicate that the responsibility for ensuring children are appropriately educated might shift entirely to parents. However, as I have argued, this is unlikely to prove effective and once cognitive enhancement (for instance through genetic means) becomes available, the state will have a hard time avoiding at least partial responsibility for the special educational needs of this new type of child.

On a positive note, there lies significant potential within both HLP and CE children, and giving them the opportunity to develop their potential to the fullest is not only likely to result in reduced costs for health care and welfare, but also in increased productivity at a societal level. In essence, it can be argued that to leave these children to their own devices without addressing their enhanced needs will not be in the public interest, because potential will be wasted. Whilst there are historical and

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<sup>150</sup> Asbury and Plomin (n 9) 8.

<sup>151</sup> R Garner, 'Finland Schools: Subjects Scrapped and Replaced with "Topics" as Country Reforms its Education System', *The Independent* (20 March 2015) <[www.independent.co.uk/news/world/europe/finland-schools-subjects-are-out-and-topics-are-in-as-country-reforms-its-education-system-10123911.html](http://www.independent.co.uk/news/world/europe/finland-schools-subjects-are-out-and-topics-are-in-as-country-reforms-its-education-system-10123911.html)> accessed 10 November 2016.

<sup>152</sup> For specific recommendations with regard to Gifted Education based on psychological science, see Subotnik, Olszewski-Kubilius and Worrell (n 145).

societal reasons for giving the needs of the so-called gifted lower priority than disabled children, this is difficult to accept when in the future the gift will not be merely due to nature but rather be caused by deliberate and intentional actions of parents, the medical profession and tolerated, facilitated and possibly even encouraged by the state. In this case, it appears at least a partial responsibility of the state to deal with any negative side-effects, if there is a perceived benefit which the state hopes to receive. Until the state assumes such responsibility for all children, it would be a significant first step to work towards a more objective application of the current law to all children, and to challenge our own insufficiently informed conception of high learning potential.

## CHAPTER 8: Beyond an Open Future:

### Cognitive Enhancement and the Welfare of Children

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#### 8.1 Introduction

The advent of biomedical and genetic technologies promises new ways of changing various aspects of human life, including the improvement of physical and mental traits. Identifying the biological underpinning of ‘general intelligence ( $g$ )’<sup>1</sup> with the goal of increasing it has become the focus of current research efforts,<sup>2</sup> presumably because intelligence is perceived as an all-purpose good by many, something that people are assumed to want whatever their values and life plans, instrumentally valuable for most people in most circumstances. Or put more simply: more of it cannot be bad. This idea is typically linked to the notion of well-being and the ability to lead ‘a good life’.<sup>3</sup>

Whereas cognitive enhancements (CE) are eagerly anticipated by enthusiasts, critics also express concerns about such interventions,<sup>4</sup> especially when these involve children.<sup>5</sup> In this debate, agreement appears limited to the moral and legal responsibility of parents for the well-being of their children,<sup>6</sup> with both sides arguing

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<sup>1</sup> General intelligence  $g$  is not to be confused with the popular understanding of intelligence as IQ;  $g$  is the scientific term used to describe general cognitive ability. LS Gottfredson, *The General Intelligence Factor* (Scientific American, Incorporated 1998).

<sup>2</sup> E Yong, ‘Chinese Project Probes the Genetics of Genius’ (2013) 497 *Nature* 297.

<sup>3</sup> As I have argued elsewhere, the link between cognitive abilities and well-being is far from established. See J Krutzinna, ‘Can a Welfarist Approach be Used to Justify a Moral Duty to Cognitively Enhance Children?’ (2016) 30 *Bioethics* 528.

<sup>4</sup> For instance, Jürgen Habermas expresses concern about the negative effect genetic interventions will have on our self-understanding. J Habermas, *The Future of Human Nature* (Polity 2003) 25.

<sup>5</sup> Although there may be concerns about CE in general, when autonomous adults are concerned there is less contention, partly because of the right to respect for autonomy.

<sup>6</sup> DS Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (Second edn, Oxford University Press 2010) 97. There is general consensus that parents are responsible for their children’s well-being, morally and legally.

that their respective position will best serve the well-being of children. In doing so, they both rely in part on one particular argument: the child's right to an open future. This suggests that there is something odd here. How can CE both further openness of a child's future and be a threat to it?

In this article, I argue that this discrepancy stems from an incomplete assessment of the morality of CE interventions in children. Proponents tend to demonstrate too strong a reliance on outcomes of CE to justify their position, whereas opponents largely focus on critiquing the means to make their claim. What both sides fail to achieve, however, is a thorough moral assessment of the ends that are being pursued.<sup>7</sup> This, I argue, is an inadequate approach, because in deciding on the moral permissibility of CE, both means and ends need to be considered. Only if both turn out to be ethical can we judge the moral permissibility of CE in children, which will ultimately hinge on the effect on the welfare of children. As I will demonstrate, the right to an open future argument alone is insufficient to reach such positive conclusions, because there are several scenarios in the present CE context in which the welfare of children is at risk independent of issues of openness of their future.

The starting point of my argument will be a short review of the right to an open future, as first expressed by Joel Feinberg, and the related question of the value of openness. Following from this, I will present three different scenarios in which the moral permissibility of CE is typically controversial and in which the concerns are framed in terms of a right to an open future. These examples will highlight how the open future argument leaves gaps in the protection of children's welfare. The final section will be dedicated to the importance of due consideration of the ends pursued

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<sup>7</sup> I deliberately draw a distinction between 'ends' and 'outcomes' of CE interventions: the ends are the goals being pursued (whether successfully or not), while the outcomes are the actual results achieved.

by CE. The examples given in the previous section will help to demonstrate where ethical problems might arise, even when openness of future is not an issue, and how a combined approach might be more adequate in addressing welfare concerns in the CE context.

## **8.2 The right to an open future**

One of the most prominent arguments in the CE debate relies on the notion of the child's 'right to an open future', first introduced by Joel Feinberg.<sup>8</sup> Under this one right, Feinberg subsumes several other rights, which in the case of children are held in trust for them until they are sufficiently self-determining persons to make their own autonomous decisions. In essence, he is concerned with protecting the future autonomy and self-fulfilment of children, which might be forfeited if the wrong decisions are made on their behalf. Rather than being a purely qualitative statement, however, 'wrong decisions' according to Feinberg are those decisions that are of a limiting nature with regard to the capacity for self-fulfilment and autonomy. It is, therefore, conceivable that even decisions leading to a benefit for a child could be considered wrong should they limit the child's capacity for making his or her own choices as an autonomous adult. Some choices may no longer be available as they would have been foreclosed by previous decisions made by others on his or her behalf. Such decisions would be said to interfere with the child's right to an open future.<sup>9</sup> Examples include allowing Jehovah's Witness parents to refuse a mother's

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<sup>8</sup> J Feinberg, 'The Child's Right to an Open Future' in William Aiken and Hugh LaFollette (eds), *Whose Child? Children's Rights, Parental Authority, and State Power* (Littlefield, Adams & Co. 1980).

<sup>9</sup> Ibid 130.



life-saving blood transfusion,<sup>10</sup> or allowing the Amish to keep their children out of state schools.<sup>11</sup>

According to Feinberg, a child has a general right to have his or her ‘future options kept open until he is a fully formed self-determining adult capable of deciding among them’.<sup>12</sup> This is of immense importance: ‘Children are not legally capable of defending their own future interests against present infringement by their parents, so that task must be performed for them, usually by the state in its role of *parens patriae*.’<sup>13</sup>

This appears a straightforward claim on future autonomy and self-fulfilment, which ought to be preserved. Given the importance we generally attach to autonomy, it is intuitively appealing. However, Feinberg himself identifies at least four distinct types of autonomy, and it is clear that he is not primarily concerned with mere *capacity* (to govern oneself) when he defends children’s right to an open future, but rather with autonomy as a *condition*.<sup>14</sup> The intuitive appeal of such a claim obfuscates the complexity of the underlying issue. Different values have to be carefully balanced. As Jonathan Glover notes, when it comes to parental decisions about children’s genetic characteristics, there is a conflict between self-creation and independence: ‘We value an open future, one that leaves us some scope to shape ourselves. We also value our independence, the fact that our nature is not just the product of decisions

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<sup>10</sup> Ibid 131.

<sup>11</sup> This was the issue in *State v Garber* 419 P2d 896 (Kan 1966).

<sup>12</sup> J Feinberg, ‘The Child’s Right to an Open Future’ in Randall R. Curren (ed), *Philosophy of Education: An Anthology* (Blackwell 2007), 113.

<sup>13</sup> Ibid 114.

<sup>14</sup> This condition of governing oneself entails the possession and practice of certain virtues, such as self-determination, authenticity, and self-legislation (among others). This raises many questions about the precise nature and extent of autonomy, but an in-depth critique of Feinberg’s approach is beyond the scope of this article. See J Feinberg, ‘Autonomy’ in John Philip Christman (ed), *The Inner Citadel: Essays on Individual Autonomy* (Oxford University Press 1989).

by others.’<sup>15</sup> Because of the unavoidable influence of both genes and parenting choices on a child, both self-creation and independence can only ever be partial:<sup>16</sup> ‘Some parental choices (genetic or environmental) may increase our abilities and so give us a more open future with greater scope for self-creation. But the role of the parental choices in itself reduces our independence.’<sup>17</sup> Glover notes that we might well be prepared to sacrifice some independence when parental choices are in our interest, even if such choices were made ‘for really bad reasons’.<sup>18</sup> This suggests that the reason for valuing openness originates both from the value attached to autonomy, as well as from a belief that having more options to choose from will lead to a better life.

It is important to remember that Feinberg’s concern about the openness of a child’s future is not a matter of everyday lifestyle choices such as which style of fashion to follow, but rather with the type of person one can become. This is why in the case of the Amish, he cautions that the state is to take a neutral stance and ‘let *all* influences [...] work equally on the child, to open up all possibilities to him, without itself influencing him toward one or another of these. In that way, it can be hoped that the chief determining factor in the grown child’s choice of a vocation and life-style will be his own governing values, talents, and propensities.’<sup>19</sup> Ironically, this is precisely what will preclude a child from being a full member of the Amish community, because this self-government goes against the Amish way of life.<sup>20</sup> Consequently, Dena Davis cautions that ‘those of us who would make arguments based on the

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<sup>15</sup> J Glover, *Choosing Children: Genes, Disability, and Design* (Oxford University Press, UK 2006) 71.

<sup>16</sup> *Ibid* 71.

<sup>17</sup> *Ibid*.

<sup>18</sup> *Ibid* 81.

<sup>19</sup> Feinberg, ‘The Child’s Right to an Open Future’ (n 8) 136.

<sup>20</sup> DS Davis, ‘The Child’s Right to an Open Future: Yoder and Beyond’ (1997) 26 *Capital University Law Review* 93, 97.

child's Right to an Open Future need to be clear and appropriately humble about what we are offering',<sup>21</sup> because the preservation of an open future might well mean foreclosure of one particular future, for example that of full and proper membership in a certain community.<sup>22</sup> It is, therefore, not merely the number of choices a child has that matters, but rather the ability and opportunity to make those choices in the future. This is because it is important to be 'recognized as the kind of creature who is capable of making choices. That capacity grounds our idea of what it is to be a person and a moral agent equally worthy of respect by all. But, of course, that it is better intrinsically to be a creature that makes choices does not imply that it is always an improvement to have more.'<sup>23</sup>

### 8.3 Choice

Although as a rule of thumb we can say that we would prefer having more choice than less,<sup>24</sup> this does not mean that it is necessarily *better* in a morally significant sense. Gerald Dworkin, in a comprehensive account, raises the issues of decision-making costs, responsibility for choice, and pressure to conform to caution against the assumption that more choice is always better.<sup>25</sup> Barry Schwartz similarly argues that we can in fact have too much choice, which ultimately results in reduced well-being.<sup>26</sup> Unlimited individual freedom and self-determination can actually become so burdensome that it is difficult to defend a claim of the intrinsic value of choice. Even

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<sup>21</sup> Ibid 96.

<sup>22</sup> Davis acknowledges that the case of the Amish appears relatively uncontroversial because of the Amish's particular characteristics. However, she gives the example of Female Genital Mutilation (FGM) to point out the importance of protecting a child's open future from any infringement for the sake of community values or membership.

<sup>23</sup> G Dworkin, 'Is More Choice Better than Less?' (1982) 7 *Midwest Studies in Philosophy* 47, 60.

<sup>24</sup> Ibid 59.

<sup>25</sup> Ibid 59.

<sup>26</sup> B Schwartz, *The Paradox of Choice: Why More Is Less* (HarperCollins 2005).

without any such negative experiences in the face of choice, Dworkin argues it is implausible to make such a claim, because in the absence of a special incentive (e.g. a financial reward) one has no reason to prefer having a choice between lower-ranked alternatives to receiving one's number one choice,<sup>27</sup> which is precisely what would be the case if choice had intrinsic value. The right to an open future can, therefore, be said to be more about becoming a person capable of making self-determined life decisions, rather than about having as many choices as possible.<sup>28</sup>

Although it seems quite improbable that Feinberg was thinking about CE in children when he first introduced the idea of a child's right to an open future in 1980, he was concerned with the appropriate level of parental authority.<sup>29</sup> In light of the aforementioned scientific progress and enthusiasm for CE, this question is more pressing than ever, making it a useful exercise to apply Feinberg's principle in this newly arisen context to determine whether it can provide any guidance as to what the ethically right thing to do is: where the line between parental autonomy and children's welfare interests ought to be drawn.<sup>30</sup>

#### **8.4 The right to an open future: Case studies**

Given the importance of the welfare of children and the fact that the right to an open future argument is advanced both by those who claim that CE is morally problematic

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<sup>27</sup> Dworkin (n 23) 60. Note that Dworkin assumes the infinite divisibility of utility for his example.

<sup>28</sup> This explains the case of the Amish, where the future option of becoming a full member of the community might well be taken away from a child in favour of future capacity to make her own self-determined decisions about her life.

<sup>29</sup> Parental authority and/or choice have different origins in law and in philosophy. Whilst in law all rights of parents ultimately derive from their responsibility for their children, philosophy also recognizes parental autonomy as an ethical value.

<sup>30</sup> Davis believes that the concept of the child's right to an open future provides a new pathway toward resolving the tension between 'the beneficence model of patient care and the rights of parents to their own autonomy and to the protection of their family units.' See Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (n 6) 98.

and by those who claim the opposite, I will consider three examples to demonstrate in what ways the right to an open future argument is insufficient protection for children's welfare.

#### **8.4.1 Case study 1 – Pre-conception CE: Genetic selection**

In a recently published article,<sup>31</sup> Ole Martin Moen suggests moderate financial incentives for women who agree to use sperm from highly intelligent donors instead of their husbands, in order to increase overall intelligence levels in our society. Moen believes that '[i]f we could raise global IQ, we would reap significant benefits. Smart people tend to benefit themselves, but, just as importantly, they also benefit others, for an invention or a smart solution is a value that can be utilized again and again.'<sup>32</sup> He is convinced that 'we need all the IQ points we can get to solve the world's challenges'.<sup>33</sup>

The idea of using genetic selection to increase intelligence of children is not new, but has had limited success in the past.<sup>34</sup> What is new about Moen's proposal is the idea of monetary incentives paid by the state to increase societal intelligence levels. Although there are many things to be said in response to this idea, for present purposes what matters is how the right to an open future argument can be used in response to such proposals.

Unfortunately, we do not even get as far as applying the argument, for the simple reason that there is no one whose right to an open future can possibly be said to have

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<sup>31</sup> OM Moen, 'Bright New World' (2016) 25 Cambridge Quarterly of Healthcare Ethics 282.

<sup>32</sup> Ibid 283.

<sup>33</sup> Ibid 283.

<sup>34</sup> D Plotz, *The Genius Factory: The Curious History of the Nobel Prize Sperm Bank* (Random House 2006).

been infringed upon. In the present scenario, a non-identity problem<sup>35</sup> arises, because the child born is not identical to the one who would have been born without the intervention; that is, use of this particular donor sperm. To say that the child's right to an open future has been interfered with because of the intervention is absurd, because that particular child would not exist without that intervention.

The logical inapplicability of the right to an open future in this case does not mean that Moen's proposal is morally unproblematic. Critics might look to Kant's categorical imperative<sup>36</sup> and point out that the suggestion results in treating children as mere means, rather than ends in themselves.<sup>37</sup> This is because it is an essential component of Moen's argument that the means – incentivised genetic selection – are justified by references to the outcomes he expects from such an intervention, although one might also point to an intrinsic value of high intelligence for the individual.<sup>38</sup>

Anders Sandberg urges focus to be shifted from the means 'to actually discuss the ends for which enhancement is used',<sup>39</sup> which for him is the development of human well-being. This I find too unspecific in the present scenario, because Moen is explicitly concerned with solving larger societal problems, not with increasing individual well-being, and this raises several additional questions. First of all, there is an empirical question of whether the expectation of societal gains from greater

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<sup>35</sup> D Parfit, *Reasons and Persons* (Oxford University Press 1984).

<sup>36</sup> I Kant, *Grundlegung zur Metaphysik der Sitten* (first published 1786, Karl-Maria Guth 2016).

<sup>37</sup> That this results in treatment as mere means seems unlikely and mixed motives appear more plausible, as is often argued in the case of saviour siblings, where children are created / selected for a specific purpose, but are also loved for themselves.

<sup>38</sup> A view I do not share. See Krutzinna (n 3) 530. Moen later clarifies that he does not believe in the intrinsic value but rather the instrumental value of intelligence. OM Moen, 'Smarter Babies' (2016) 25 *Cambridge Quarterly of Healthcare Ethics* 515, 515.

<sup>39</sup> A Sandberg, 'Cognitive Enhancement: Upgrading the Brain' in Julian Savulescu, Ruud ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011) 85.

intelligence is realistic at all;<sup>40</sup> and second, there is a moral question as to the grounds on which those children can be held responsible for solving society's problems: the ends that Moen is pursuing. In summary, his proposal appears to be a recommendation to treat children as means, which he justifies by reference to expected but empirically unproven outcomes.<sup>41</sup>

These outcomes are not equivalent to the ends. In Moen's proposal, the ends are the use of geniuses to solve the world's problems, whereas the outcomes may be all sorts of positive, negative, or neutral results, the most obvious being a more intelligent generation of children. Although it can plausibly be argued that the resulting children have their right to an open future interfered with, this is not because of the intervention itself but because of the plans made for them, the ends for which they were created.<sup>42</sup> Even this is disputable, however, because in the absence of any further efforts to exercise those plans their future will not be less open. I will return to this point in the third case study below.

#### **8.4.2 Case study 2 – Pharmacological CE**

The case of an American physician received much media attention a few years ago. Admitting to prescribing Adderall to children from low-income families even in the absence of attention-deficit/hyperactivity disorder (ADHD), Dr Michael Anderson said: 'I don't have a whole lot of choice. We've decided as a society that it's too expensive to modify the kid's environment. So we have to modify the kid.'<sup>43</sup> This

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<sup>40</sup> M Häyry, 'Increasing the Sum Total of General Intelligence, As Measured by Individual IQ Scores: What, How, and Why?' (2016) 25 *Cambridge Quarterly of Healthcare Ethics* 505.

<sup>41</sup> Given that there are highly gifted members of our society, I have reasonable doubt that genius creation would work in the way proposed by Moen.

<sup>42</sup> It can thus not be used as an argument against genetic selection.

<sup>43</sup> A Schwarz, 'Attention Disorder or Not, Pills to Help in School' (*New York Times*, 9 October 2012) <[www.nytimes.com/2012/10/09/health/attention-disorder-or-not-children-prescribed-pills-to-help-in-school.html](http://www.nytimes.com/2012/10/09/health/attention-disorder-or-not-children-prescribed-pills-to-help-in-school.html)> accessed 20 November 2016.

approach has recently been endorsed by Keisha Ray, who suggests that stimulant use might be an appropriate remedy for social inequalities.<sup>44</sup>

Although Ray does not directly invoke Feinberg's right to an open future, she explains her goal as wanting 'to make undesirable environments have less control over the futures open to disadvantaged children and to explore ways – medical and/or social – to create new opportunities for healthy lives'.<sup>45</sup> Does this type of policy approach infringe on the right to an open future? The importance of effective education for future life outcomes is well-established; therefore, it could be argued that such an approach leads to a more open future. On the other hand, most of us would probably hope for an environmental modification rather than modifying children to circumvent problems of social inequality, because it conflicts with our idea of self-creation and independence.<sup>46</sup>

It becomes clear that a straightforward application of the right to an open future is not always possible in such highly complex scenarios, and, therefore, we need more to explain our concerns with this type of proposal.<sup>47</sup> One worry is the likely futility of such an intervention. Scientific evidence suggests that psychotropic drugs are largely ineffective in healthy individuals,<sup>48</sup> rendering the attempt a waste of scarce financial resources. Another major concern relates to the self-image of those children

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<sup>44</sup> K Ray, 'Not Just "Study Drugs" For the Rich: Stimulants as Moral Tools For Creating Opportunities For Socially Disadvantaged Students' (2016) 16 *The American Journal of Bioethics* 29.

<sup>45</sup> *Ibid* 33.

<sup>46</sup> R Ray and G Davis, 'Pharmacists Can't Administer Opportunity: The Role of Neuroenhancers in Educational Inequalities' (2016) 16 *The American Journal of Bioethics* 41, 43: 'Neuroenhancers do not bring needed resources into schools; thus we ask, even if they do increase one's attentiveness, what good is such attentiveness without teachers, books, and computers to learn from?'

<sup>47</sup> There are obvious practical and empirical issues with Ray's proposal. These are beyond the scope of this paper but see, for instance, S Sattler and I Singh, 'Cognitive Enhancement in Healthy Children Will Not Close the Achievement Gap in Education' (2016) 16 *The American Journal of Bioethics* 39, 40: 'The lack of attention to the practical and health dimensions of stimulant drug use is ironic in an article that promotes equality of opportunity and child well-being.'

<sup>48</sup> CI Ragan, I Bard and I Singh, 'What Should We Do About Student Use of Cognitive Enhancers? An Analysis of Current Evidence' (2013) 64 *Neuropharmacology* 588.



and their relationship with drugs,<sup>49</sup> which might be negatively impacted by the administration of stimulants to address their academic problems. Michael Sandel describes the use of such drugs as ‘a bid for compliance, a way of answering a competitive society’s demand to improve our performance and perfect our nature. This demand for performance and perfection animates the impulse to rail against the given. It is the deepest source of the moral trouble with enhancement.’<sup>50</sup> Related to this is the concern about the parent-child relationship, when drugs are prescribed for educational purposes, because it removes the dynamic process of children negotiating their identities within the family and cultural context; instead, psychopharmacology is used to elicit a certain behavioural response.<sup>51</sup>

Again, the means (drugs) are not what makes Ray’s proposal morally problematic; the real issue arises with regard to the ends being pursued. Although it appears that the goal is to improve children’s educational outcomes and hence their well-being, which would be supported by the right to an open future argument, in reality what is being sought is a cost-effective quick fix for society’s ills at the expense of individual children.<sup>52</sup>

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<sup>49</sup> C Stevenson, ‘Self-Pathologizing and the Perception of Necessity: Two Major Risks of Providing Stimulants to Educationally Underprivileged Students’ (2016) 16 *The American Journal of Bioethics* 54, 56.

<sup>50</sup> MJ Sandel, *The Case Against Perfection* (Harvard University Press 2009) 61.

<sup>51</sup> Z Stein and others, ‘Ethical Issues in Educational Neuroscience: Raising Children in a Brave New World’ in Judy Illes and Barbara Shahakian (eds), *The Oxford Handbook of Neuroethics* (Oxford University Press 2011) 813-14. The authors also point out that at least in the US, some schools already require the administration of stimulants to students with certain behavioural profiles and caution that ‘[m]andated prescriptions establish an educational process in which the failure to meet specific behavioral expectations is thought to warrant a physical intervention aimed at changing the brain chemistry of the child – the strategic alteration of the child’s dispositions, regardless of the child’s (or her parent’s) dissent.’

<sup>52</sup> Ray and Davis (n 46) 42; and KB Warren, ‘Promoting Stimulants to Increase Educational Equality: Some Concerns’ (2016) 16 *The American Journal of Bioethics* 52. Note that these are not necessarily in conflict.

In this case, the right to an open future argument to some extent explains the problems with this type of CE, but fails to encompass all of the underlying issues.

### 8.4.3 Case study 3 – Post-conception CE

There are many other ways in which CE could be brought about. These might include gene editing in embryos, gene therapy in infants, or arguably even conventional methods such as education and training,<sup>53</sup> and prenatal nutrition, which can cause significant changes in genetic expression.<sup>54</sup> All of these may affect cognitive capacities of the resulting born child.

In contrast to the first example, there is now a person who is affected by the intervention; therefore, issues of identity might arise and impact on the openness of the child's future. However, this still makes no logical sense, because if an identity-affecting change occurs, the resulting person is not who that person would have been in the absence of such intervention, and therefore cannot be said to have 'a legitimate grievance' with regard to his or her identity.<sup>55</sup>

Regardless of whether an intervention turns out to be identity-changing,<sup>56</sup> enhancement critics such as Jürgen Habermas remain concerned. For Habermas, what matters is the child's sense of self being affected by *genetic* enhancement, which he singles out because of a perceived asymmetrical relationship between the parents and the child in the case of genetic enhancement.<sup>57</sup> He argues that in an ordinary situation, children can negotiate with their parents, oppose or ignore their

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<sup>53</sup> J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007) 14.

<sup>54</sup> Sandberg (n 39) 81.

<sup>55</sup> For further details see R Chadwick, 'Gene Therapy' in Helga Kuhse and Peter Singer (eds), *A Companion to Bioethics* (Blackwell Publishing 1998) 193.

<sup>56</sup> Sandberg (n 39) 81.

<sup>57</sup> Habermas (n 4).

parents' views, and decide for themselves. In the case of genetic enhancement, Habermas argues, this opportunity does not present itself.

My response to this is twofold: first of all, it seems naïve to believe that other types of intervention, such as education, cannot have equally profound effects and that they instead provide a full opportunity for a negotiating relationship with one's parents.<sup>58</sup>

Habermas, like many enhancement critics, appears too focused on the means. Education serves as a useful example here. Teaching children literacy, numeracy, and various academic skills will lead to a more open future and assist in their development into autonomous, self-determined adults. However, education can also be used as a tool to indoctrinate children, with very harmful effects on the sense of self and no negotiating of one's identity taking place.<sup>59</sup> The second point relates to the fact that knowledge of how one was created is insufficient to substantiate interference with the right to an open future. Mere belief that one's future 'is already determined, when that belief is clearly false and supported only by the crudest genetic determinism' might lead to psychological harm, but cannot be said to infringe on the right to an open future.<sup>60</sup>

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<sup>58</sup> D Wasserman, 'My Fair Baby: What's Wrong with Parents Genetically Enhancing Their Children?' in Verna V Gehring (ed), *Genetic Prospects: Essays on Biotechnology, Ethics, and Public Policy* (Rowman & Littlefield 2003).

<sup>59</sup> Some countries, such as Norway, have been known to remove children from their birth families on the grounds of religious indoctrination and radicalisation, even in the absence of corporal punishment. See N Berglund, 'Norway Defends its Child Welfare Laws' (*newsinenglish.no*, 11 January 2016) <[www.newsinenglish.no/2016/01/11/norway-defends-its-child-welfare-laws/](http://www.newsinenglish.no/2016/01/11/norway-defends-its-child-welfare-laws/)> accessed 10 November 2016.

<sup>60</sup> A Buchanan and others, *From Chance to Choice: Genetics and Justice* (Cambridge University Press 2001) 198.

## **8.5 Case analysis**

The preceding case studies demonstrate that much attention is being paid to the means of achieving CE, with “high-tech” interventions such as psychopharmacology and genetic technology appearing far more controversial than the more conventional methods of education, training, and nutrition. The moral comparability of old and new ways of shaping children should not be seen as an encouragement to readily accept emerging technologies, such as genetic engineering, but should prompt parents to carefully consider their parenting goals.<sup>61</sup> As I have argued, if we are really concerned about the welfare of children, we need to address the ends being pursued independent from the means.

## **8.6 The Importance of Ends**

Most parental decisions seem to fall into the category of ethically unproblematic choices in the Feinberg sense in that they will have an effect on the child’s life to some extent: in addition to the genetic preconditions, parenting will be the most important factor in shaping the child’s character and influencing preferences, skills, and choices. Only some of these parental decisions would however qualify as posing a threat to an open future; that is, the future autonomy and ability for self-fulfilment of the child. Whereas it seems clear that choosing white rather than green clothes for a child will not pose such a threat, it already becomes more complicated when the choices made are pink for girls and blue for boys. Other choices are even more difficult to judge, such as genetic selection for non-disease traits such as sex, which

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<sup>61</sup> Sandel (n 50) 61-62.

is already being practiced, and which is criticised by some for presenting an ethical problem, because:

[I]t promotes gender role stereotyping and encourages parents to invest heavily in having certain types of children. This combination of investment and stereotyping makes it more difficult for the child to grow and develop in ways that are different than, perhaps, even in conflict with, parental expectations.<sup>62</sup>

Why is it so difficult to judge these choices? Most of the issues arising (or likely to arise) with regard to CE are simply stronger versions of existing child-rearing problems. Unreasonable or excessive parental expectations are already commonplace in many parent-child-relationships;<sup>63</sup> however, the possibilities of CE appear to exacerbate the problem. Expectations may be significantly and unrealistically raised by promissory marketing claims of CE technology providers, and eventually interventions may make possible ‘more radical methods for *imposing* parental or cultural preferences onto children. [...] For example, parents and schools may soon choose to use biomedical technologies to enhance working memory, mathematical/spatial intelligence, emotional self-regulation, or talent at sports.’<sup>64</sup> These issues are not new, but CE increases the urgency with which these problems will have to be addressed, especially if it were to become widespread and if our society continues to become increasingly competitive.

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<sup>62</sup> Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (n 6) 149.

<sup>63</sup> For instance, parents choosing sport over music for their child, regardless of the child's own preferences and talents.

<sup>64</sup> Stein and others (n 51) 814-15.

The difficulty with judging the ends pursued by CE lies in the fact that for the individual child, being cognitively enhanced might actually be beneficial. It is hard to argue against the importance of cognitive capacities in developing autonomy, and in successfully navigating through life's complexities. It is, therefore, no contradiction to argue that enhancing cognitive powers works in favour of a more open future. For this reason, a prohibition on CE research seems undesirable; keeping an open mind about new technologies and the possibilities offered by them is important to allow us to evaluate consequences carefully before reaching moral conclusions.<sup>65</sup>

A child's development, however, depends on more than available cognitive capacities, and whether or not a child will develop into a fully autonomous, self-determined adult will be affected by the type of goals pursued by parents and by society. The latter is important, because should a proposal such as Moen's make it into public policy, it will be society, not just parents, setting the goals for CE children, placing on them the burden of making our world a better place.<sup>66</sup> This is the dream of many social engineers, who believe in the strategic shaping of future generations 'by means of instrumentally targeted interventions that change their biological nature'.<sup>67</sup>

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<sup>65</sup> J Harris, 'Why Human Gene Editing Must not be Stopped' (*The Guardian*, 2 December 2015) <[www.theguardian.com/science/2015/dec/02/why-human-gene-editing-must-not-be-stopped](http://www.theguardian.com/science/2015/dec/02/why-human-gene-editing-must-not-be-stopped)> accessed 10 November 2016.

<sup>66</sup> Sandberg (n 39) 84: 'We face many pressing problems which we would be better able to solve if we were smarter or more creative. An enhancement that enables an individual to solve some of society's problems would produce a positive externality: in addition to benefits for the enhanced individual, there would be spillover benefits for other members of society.'

<sup>67</sup> Stein and others (n 51) 811.

Parental expectations are no less problematic. The negative impact of high achievement goals on children is generally well-established.<sup>68</sup> Assuming that parents do not take decision-making with regard to their children lightly, it seems fair to argue that they are likely to have *something* in mind when they opt for CE interventions. They might hope for some advantage or benefit for their child in comparison with the unenhanced “version” of the same child,<sup>69</sup> but this could be no more than a vague hope that their child will be better off in some sense and the pursued ends might actually be mistaken ideas about what is “good.”<sup>70</sup> The motivations parents have for the choice to enhance have important implications for the moral permissibility of the selection.<sup>71</sup> The greater the investment required for an enhancement – including financial, personal, and administrative effort – the more likely it is that parents will feel entitled to the desired result.<sup>72</sup> Empirical research into the preferences for choices of donor gametes confirms this idea to some extent,<sup>73</sup> with an increasing number of prospective parents seeking out ‘the ideal donor’.<sup>74</sup>

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<sup>68</sup> Achievement expectations were found to be most harmful: KE Ablard and WD Parker, ‘Parents’ Achievement Goals and Perfectionism in their Academically Talented Children’ (1997) 26 *Journal of Youth and Adolescence* 651.

<sup>69</sup> In a particularly pessimistic scenario, one could argue that parents are selfishly motivated by what is good for them, rather than only for their children. The truth in most cases probably lies somewhere in between.

<sup>70</sup> For instance, parents might hope for a particularly beautiful or smart child in the hope that this will automatically translate into success and/or happiness.

<sup>71</sup> Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (n 6) 37.

<sup>72</sup> *Ibid* 37.

<sup>73</sup> Many cryobanks are offering a special category for ‘smart’ or highly educated donor sperm, for instance Fairfax Cryobank, ‘Donor Categories’ (*Fairfax Cryobank website*) <<http://fairfaxcryobank.com/about-our-donors#Categories>> accessed 20 November 2016. Research shows preference for certain nonmedical traits over physical resemblance: H Flores and others, ‘Beauty, Brains or Health: Trends in Ovum Recipient Preferences’ (2014) 23 *Journal of Women's Health* 830.

<sup>74</sup> American company Xytex Corp. recently received much media attention when it was revealed that an ex-convict was marketed as ‘genius donor’: C Hauser, ‘Sperm Donor’s Profile Hid Mental Illness and Crime, Lawsuits Say’ (*The New York Times*, 17 April 2016) <[www.nytimes.com/2016/04/18/world/americas/sperm-donors-profile-hid-mental-illness-and-crime-lawsuits-say.html](http://www.nytimes.com/2016/04/18/world/americas/sperm-donors-profile-hid-mental-illness-and-crime-lawsuits-say.html)> accessed 20 November 2016.

However, it would be premature to conclude from this that all parental choices for CE are morally problematic. Not all motivations are the same.<sup>75</sup> In the absence of specific expectations attached to such CE interventions and if no particular ends are being pursued by parents and/or society, it would be hard to uphold a claim that CE infringes on a child's right to an open future. The enhanced child would merely be one with greater cognitive powers, which might render the child different from other children or to a prior "version" of the same child (depending on the type of intervention used); but as for most non-disease traits, it seems fair to argue that the outcome is hardly ever so bad as to foreclose a significant number of opportunities – the child's future is still open, and the opportunity for full autonomy and self-determination is still there, even if the child is not the same as that child would have been without the CE intervention.

In summary, the reasons for choosing a particular type of enhancement are decisive for the moral permissibility of the enhancement in question, because the attached expectations are what may restrict the child's future freedom.<sup>76</sup> This is true even when the trait selected is deemed intrinsically valuable, as is often argued in the case of intelligence.<sup>77</sup> An example are parents who desire both a child of great intelligence with maximum income potential to ensure the financial security of the family, and a maximally empathetic, family-oriented child who will happily care for his or her elderly parents. Although we are currently a long way off from such ideas becoming

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<sup>75</sup> Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (n 6) 175.

<sup>76</sup> *Ibid* 37.

<sup>77</sup> Some maintain that high cognitive ability has intrinsic value and even advocate a duty to cognitively enhance children. See J Savulescu, A Sandberg and G Kahane, 'Well-Being and Enhancement' in Julian Savulescu, Ruud Ter Meulen and Guy Kahane (eds), *Enhancing Human Capacities* (Wiley-Blackwell 2011).



reality,<sup>78</sup> it is worth considering the ethical issues that might arise once such technologies become available, especially as there are huge economic interests at play that will likely lead to significant marketing efforts to parents with auspicious claims influencing parental expectations. Relevant research is already underway,<sup>79</sup> making these kinds of ethical reflections inevitable.

## 8.7 Conclusion

In this article, I have argued that CE in children can only ever be justified if both the means to achieve it and the ends that are being pursued are morally permissible, and have criticised the current state of the debate for its reliance on the right to an open future as protection for the welfare of children. As a remedy, I have suggested focusing on the ends pursued by any CE intervention, rather than the framing of the moral concerns merely in terms of openness of future. It has become clear that the right to an open future cannot provide all the answers to the protection of the well-being of children.

One of the difficulties in the CE debate lies in our incomplete understanding of cognitive capacities in general, and general intelligence specifically, and their relevance for leading a good life. Thorough research into this field is strongly advisable, before there are serious discussions about proposals such as Moen's or Ray's. As a starting point, the longitudinal studies into the lives of gifted children might provide some insight into the significance of greater cognitive capacities,<sup>80</sup> but

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<sup>78</sup> We already have somewhat analogous situations, e. g. training children for sport or music from a very young age.

<sup>79</sup> Albeit with currently limited success: see Yong (n 2).

<sup>80</sup> Many of these studies are already available, see for instance J Freeman, *Gifted Lives: What Happens when Gifted Children Grow Up* (Routledge 2013).

broader and complex issues such as child development, education, and social inequality need to be examined, preferably through an interdisciplinary research approach. In addition, as I have argued in detail elsewhere,<sup>81</sup> CE by no means guarantees greater success or achievement for a child, but initially merely results in increased cognitive *potential*. Only if nature meets nurture will this additional potential make a difference in outcome for the child (as for the rest of us). Much more will have to be done for this to translate into actual achievements or performance, let alone increased well-being.<sup>82</sup>

The appeal in focusing primarily on the means of CE is understandable, given that it is so much harder to regulate the ends. It is impossible to fully know what motivates parents, not only to have certain types of children, but to have children in general. This difficult step must however be taken in order to show respect for both parental autonomy and the (future) autonomy of children. The right to an open future in many cases helps us understand what is at stake, but where it does not suffice as an explanation, as in the abovementioned case studies, we should not be tempted to forever twist the concept so as to fit our concerns under its umbrella, but should instead focus on the ends in more general terms. It seems entirely plausible to argue that we have moral concerns about the consequences of adopting the proposals from the first two case studies, without having to relate them to the openness of children's futures. A common worry is the slippery slope we might be headed toward,<sup>83</sup> which too seems not entirely unreasonable considering the proposals mentioned. Jonathan Glover makes a valid claim when he points to the 'recurring theme of overconfident

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<sup>81</sup> Krutzinna (n 3) 532.

<sup>82</sup> Some evidence can be drawn from longitudinal studies into gifted children and adults: see Freeman (n 80).

<sup>83</sup> Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (n 6) 168.

reconstruction' and the human costs involved in the failed projects of missionaries, communists, and capitalists.<sup>84</sup> Similarly, Michael Sandel cautions that engagement in CE activities for success in a competitive society is not a sign of freedom, but rather 'the deepest form of disempowerment.'<sup>85</sup>

Whereas Glover and Sandel use this as an argument against (genetic) CE interventions in children, a more liberal approach might be to leave enhancement decisions as much as possible to families without too much government control.<sup>86</sup>

The Kantian imperative suggests that people should never be treated as means only, to the exclusion of treating them as ends in themselves; however, 'as long as the new baby will be loved and nurtured for her own sake it is not ethically problematic to create her at least partially in the hope that she will be of use to someone else'.<sup>87</sup>

There will always be an unavoidable conflict between the values of independence and self-creation when it comes to raising children. We should therefore focus on the ethical limitations to parental decision-making while remaining conscious of the fact that a perfectly open future can exist only in theory.

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<sup>84</sup> Glover (n 15) 63-64.

<sup>85</sup> Sandel (n 50) 97.

<sup>86</sup> Chadwick (n 55) 195.

<sup>87</sup> Davis, *Genetic Dilemmas: Reproductive Technology, Parental Choice, and Children's Futures* (n 6) 162.

## CHAPTER 9: Shaping Children:

### The Pursuit of Normalcy in Paediatric Cognitive Neuroenhancement

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#### 9.1 Introduction

The idea of human enhancement is not new, but the rapid progress in biomedical technologies and the continuing development in pharmacology make effective enhancement increasingly realistic and thorough ethical evaluation of interventions therefore urgent.<sup>1</sup> While the type of enhancements which are supposed to grant us superpowers are at present purely a matter of fiction, moderate interventions are slowly appearing on the (medical) horizon. These include new technologies such as genome editing,<sup>2</sup> but also methods which have long been in use, such as pharmacology,<sup>3</sup> now applied in the context of neuroenhancement, which has been described as ‘the use of prescription medication by healthy persons for the purpose of augmenting normal cognitive or affective function’.<sup>4</sup>

The enthusiasm for these scientific advances is accompanied by ethical concerns. Traditionally, much of the debate has centred on the idea that the ethical permissibility of an intervention hinges on whether or not it could be considered

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<sup>1</sup> The use of potential performance enhancing drugs is not a new phenomenon: substances such as amphetamines and cocaine have a long history of being used for this purpose: see SK Bell, JC Lucke and WD Hall, ‘Lessons for Enhancement From the History of Cocaine and Amphetamine Use’ (2012) 3 *AJOB Neuroscience* 24.

<sup>2</sup> FA Ran and others, ‘Genome Engineering Using the CRISPR-Cas9 System’ (2013) 8 *Nature Protocols* 2281.

<sup>3</sup> SS Bush, ‘Neurocognitive Enhancement: Ethical Considerations for an Emerging Subspecialty’ (2006) 13 *Applied Neuropsychology* 125.

<sup>4</sup> WD Graf and others, ‘Pediatric Neuroenhancement: Ethical, Legal, Social, and Neurodevelopmental Implications’ (2013) 80 *Neurology* 1251, 1251. However, as will be discussed below, a lack of diagnostic clarity means that medication might be administered even in the absence of a valid diagnosis, which would effectively amount to neuroenhancement, or that a diagnosis is only given to permit prescription, while in other cases diagnosis might be medically justified. For this reason, too heavy reliance on ‘healthy person’ within the definition of neuroenhancement is somewhat difficult.

medical treatment. Although much has been written about such a treatment / enhancement distinction,<sup>5</sup> no conclusion has so far been reached and some philosophers even argue that no morally relevant distinction can be drawn.<sup>6</sup> The absence of an easy way to tell *the good* interventions from *the bad* is particularly problematic in the context of children. Where autonomous adults are concerned, all things being equal, enhancement raises no additional ethical issues with regard to the individual: Familiar ethical concerns relating to individual autonomy, authenticity and personal identity arise, but these are not special to enhancement and result whenever individual decision-making is concerned.<sup>7</sup> The same cannot be said for children, who can be described as particularly vulnerable due to their developing autonomy and the fact that most decisions in the early stages of their lives are taken on their behalf by others (mostly their parents), often with long-term, or even life-long, effects. This leads to a dilemma, because on the one hand children need to be protected against undue interference with their best interests, which might call for a cautious approach with regard to enhancement. To that effect, it has been argued that there is no convincing evidence for the claim that paediatric cognitive enhancement improves well-being,<sup>8</sup> and the practice has also been found to be against the best interests of children.<sup>9</sup> On the other hand, the same best interests make it difficult to reject enhancement interventions outright, because there might be circumstances in

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<sup>5</sup> There is an abundance of literature on this topic; however, a detailed review of the treatment / enhancement debate is beyond the scope of this chapter. For further information on the debate see J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007).

<sup>6</sup> Ibid.

<sup>7</sup> Full consideration of these issues is beyond the scope of this Chapter, which has as its focus the paediatric context. For an interdisciplinary overview, see E Hildt and AG Franke, *Cognitive Enhancement: An Interdisciplinary Perspective* (Springer 2013). In addition, questions of distributive justice and fairness are relevant on a collective level.

<sup>8</sup> J Krutzinna, 'Can a Welfarist Approach be Used to Justify a Moral Duty to Cognitively Enhance Children?' (2016) 30 *Bioethics* 528.

<sup>9</sup> N Gaucher, A Payot and E Racine, 'Cognitive Enhancement in Children and Adolescents: Is it in their Best Interests?' 102 *Acta Paediatrica* 1118.

which our moral obligation towards our children to prevent, mitigate or cure harm or suffering, and our duty to pursue what is good for them, appears to require us to proceed with an enhancement.<sup>10</sup> But how do we know when and to what extent it is morally right to enhance? In addition to this moral question, the stakeholder perspective needs to be taken into account, which has been found to place more emphasis on degree and context than on an absolute *right* or *wrong* binary.<sup>11</sup>

So far, much of the ethical discussion surrounding paediatric enhancement has focused on the means of enhancing. Although not universally accepted as enhancement at all, conventional methods, such as education, training, and diet and exercise, appear much less controversial, while new technologies and pharmacological interventions raise scepticism or are rejected categorically.<sup>12</sup> This approach, however, fails to solve the aforementioned dilemma of knowing when paediatric enhancement is morally justified, or even advisable. To bring out the real ethical issues an alternative approach needs to be taken, namely that of evaluating the ends pursued. It is not sufficient for a conclusion of ethical permissibility to demonstrate that there is nothing inherently *wrong* with the chosen enhancement method, but rather it needs to be demonstrated that the goal which is being pursued by a particular enhancement is one that is morally acceptable.<sup>13</sup> Education can be as morally despicable as the administration of drugs if it is done with an unethical goal in mind, such as indoctrination. What matters in the present context are the ends pursued by cognitive neuroenhancement, that is, the goal parents have in mind when

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<sup>10</sup> J Harris, 'Enhancements are a Moral Obligation' in Julian Savulescu and Nick Bostrom (eds), *Human Enhancement* (OUP Oxford 2009).

<sup>11</sup> NS Fitz and others, 'Public Attitudes Toward Cognitive Enhancement' (2014) 7 *Neuroethics* 173.

<sup>12</sup> J Habermas, *The Future of Human Nature* (Polity 2003); President's Council on Bioethics and L Kass, *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Harper Perennial 2003).

<sup>13</sup> It might be objected that it seems bizarre that if there is nothing morally wrong with an enhancement method, that it should not be permissible. The reasons for this will be addressed in the next section.

they opt for enhancement of their children. This, it will be argued below, is frequently framed in terms of normalcy to justify interventions to modify child behaviour.

## **9.2 The idea of normalcy**

The idea of normalcy dates to the nineteenth century, when Sir Frances Galton first introduced his statistical model and the accompanying Bell curve.<sup>14</sup> This point can be said to mark the beginning of medicalisation where that which was not ‘normal’ suddenly had to be cured or treated. Today, this idea has developed so far that previously accepted character traits have in some cases become fully-fledged psychiatric disorders. One such example is depression: In Aristotle’s time some people were described as melancholic characters, while the same trait is now too often seen as a medical condition warranting intervention.<sup>15</sup> The current edition of the Diagnostic and Statistical Manual (DSM-V) issued by the American Psychiatric Association defines the qualifying amount of time for major depressive disorder as two weeks, although realistically it is difficult to conceive of a shorter period of sadness for many life-changing events.<sup>16</sup> This idealisation of a happy constitution puts enormous pressure on people to self-improve, and has led to the flooding of bookstores with self-help advice and continues to provide a steady source of income

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<sup>14</sup> LJ Davis, *Enforcing Normalcy: Disability, Deafness, and the Body* (Verso 1995).

<sup>15</sup> LJ Davis, *The End of Normal: Identity in a Biocultural Era* (The University of Michigan Press 2014) 51-52. This is not to argue that something only becomes a medical condition once it is labelled as such, but it illustrates how culture and context affect what is perceived as a condition warranting intervention.

<sup>16</sup> *Ibid* 52. It is important to note that sadness is but one of the diagnostic criteria for major depressive disorder. Others include diminished interest or pleasure in activities and feelings of worthlessness or guilt.

to life coaches and therapists,<sup>17</sup> but it is important to remember that what counts as normal or is seen as a disorder changes over time, as a historical review of the diagnostic manuals reveals.<sup>18</sup>

Neurodiversity, as an opposing concept, embraces neurological differences rather than seeing them as some form of malfunctioning. Subscribers to this view often express a preference for identity-first rather than person-first language,<sup>19</sup> endorsing neuroatypicality as an identity rather than a defect or disability.<sup>20</sup> Although there is no consensus on this issue even within the autism spectrum disorder (ASD) community, it is a view worth noting when thinking about the ethics of paediatric neuroenhancement, especially since similar movements are emerging in other communities (e.g. The Icarus Project, which involves persons typically classed as mentally ill, and whose vision it is ‘to overcome the limitations of a world determined to label, categorize, and sort human behaviour’). It is thus necessary to carefully consider whether treatment, as far as it is even available, is appropriate in all circumstances. This will entail an analysis of the pursued ends, which ought to be both realistic and in the best interests of the children, not merely in those of their carers or the general public.

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<sup>17</sup> DM Haybron, *The Pursuit of Unhappiness: The Elusive Psychology of Well-Being* (Oxford University Press 2008).

<sup>18</sup> Davis, *The End of Normal: Identity in a Biocultural Era* (n 15) 85.

<sup>19</sup> This means a preference to be referred to as an ‘Autistic’ rather than as ‘a person with autism:’ see A Sequenzia, ‘Non-Speaking Autistic Speaking’ (2016) <<http://nonspeakingautisticspeaking.blogspot.com>> accessed 10 November 2016. A similar preference is well-known from a part of the Deaf community: see R Sparrow, ‘Defending Deaf Culture: The Case of Cochlear Implants’ (2005) 13 *Journal of Political Philosophy* 135.

<sup>20</sup> For further details on the Autism Rights Movement, see A Solomon, ‘The Autism Rights Movement’ (*New York Magazine*, 25 May 2008) <<http://nymag.com/news/features/47225/>> accessed 20 November 2016.



### 9.3 Why ends matter

As argued above, thorough ethical analysis requires an evaluation of both ends and means. It is not sufficient justification to claim that the means of enhancement are ethical, because ultimately the ethical permissibility of any intervention hinges on which ends are being pursued. Morally speaking, the administration of drugs to a child for pain relief is not equivalent to the administration of drugs for purposes of tranquilisation in the absence of actual pain but purely for the convenience of parenting. In both cases, the means – the giving of drugs – are the same, but the ends being pursued are different and only in the former case can it be confidently argued that the drug giving is in the best interests of the child. The latter case is far more contentious and requires more information to be presented before a conclusion on the ethical permissibility can be reached. Where it turns out that the ends pursued are entirely unethical, the intervention also becomes unethical. In the present example, if the tranquilising drugs are given to the child because the parents struggle with the child's lively character, this constitutes an infringement of the right to respect for persons, and could pose a threat to the innocence of childhood.<sup>21</sup> The legitimacy of the goal partly depends on the subjective experience of the child in question; as such, it is not possible to give a generalised ethical judgment for certain types of interventions, because there is no objective standard to be applied. If, for instance, the tranquilising drugs are administered to this child because of a risk of self-harm, the intervention could be morally permissible.<sup>22</sup>

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<sup>21</sup> I Singh and S Wessely, 'Childhood: A Suitable Case for Treatment?' (2015) 2 *The Lancet Psychiatry* 661.

<sup>22</sup> Whether or not it will be deemed morally permissible will depend on the facts of the case, and would have to be determined through a careful weighing of risks and benefits, as well as consideration of the preferences of the child in as far as this is feasible. In addition, relational aspects matter: for example, where the parents and other family members are harmed as a result of the child's behaviour, intervention might become justifiable.

This means that wherever non-autonomous persons, such as children, are concerned, their best interests need to be critically assessed, and the ends pursued will determine the appropriateness of any means chosen to reach those ends. It is important to note here that ‘low-tech’ means are not *per se* ethically better – even education can be used for morally wrong goals.<sup>23</sup> It is therefore crucial to closely review the reasons for a decision in favour of any kind of paediatric neuroenhancement, which leads to the question of underlying motives.

#### **9.4 Motives and reasons**

Enhancement features strongly in both popular and scientific media across the world, especially the idea of cognitive enhancement, i.e. the improvement of cognitive capacities, including general intelligence, memory, and the ability to concentrate, by pharmacological and genetic means.<sup>24</sup> One reason for the special interest in cognitive enhancement might be a belief in the great instrumental value of intelligence in a competitive society, where productivity and achievement appear to be valued above all else. In this time and place, unusual or inconvenient behaviour in children tends to become quickly medicalised, with drug treatment being the preferred means of address by some parents and doctors. The existing limitations to the effectiveness of cognitive enhancement appear to leave the enthusiasm for possible interventions unhampered, and discussions about potential risks and benefits are increasing. Besides genetics, where scientific success in permanently improving cognitive

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<sup>23</sup> Arguably, if education were (mis)used in such a way, it would no longer be education in the proper meaning of the term.

<sup>24</sup> BJ Partridge and others, ‘Smart Drugs “As Common As Coffee”’: Media Hype about Neuroenhancement’ (2011) 6 PloS ONE e28416; L Wade, C Forlini and E Racine, ‘Generating Genius: How an Alzheimer’s Drug Became Considered a “Cognitive Enhancer” for Healthy Individuals’ (2014) 15 BMC Medical Ethics 1.

capacity is slower than many had hoped,<sup>25</sup> neuroenhancement by means of pharmacological interventions is receiving increasing attention<sup>26</sup> and is feared to become widespread.<sup>27</sup> One of the reasons for this is that access is relatively easy and inexpensive – unlike for instance genetic means which are still in their infancy in terms of effectiveness and are also likely to be much more financially burdensome.

Motives underlying a parental wish to enhance a child can range from the treatment of underlying conditions, the improvement of specific capacities for their own sake (intrinsic value), to ‘giving an edge’<sup>28</sup> and the achievement of certain (parental) goals. In the latter case, medical diagnosis can become a way of concealing parental desires to raise high-achieving, socially-conforming children, and medical professionals might become accessories in parents’ ambitious plans when they grant access to medications for healthy children in the hope of cognitively enhancing effects. The case of American physician Dr Anderson, who admitted to prescribing psychoactive drugs to children in the absence of an actual diagnosis of attention deficit/hyperactivity disorder (ADHD) to compensate for bad schooling, might appear an extreme and exceptional case,<sup>29</sup> but this approach has recently been endorsed by some academics as an option meriting serious consideration.<sup>30</sup> Although this same idea has been rejected by other scholars,<sup>31</sup> it demonstrates that the generality of symptoms and the resulting difficulty of correctly diagnosing

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<sup>25</sup> E Yong, ‘Chinese Project Probes the Genetics of Genius’ (2013) 497 *Nature* 297.

<sup>26</sup> Partridge and others (n 24).

<sup>27</sup> Although current evidence suggests that the prevalence rates are low: JC Lucke and others, ‘Deflating the Neuroenhancement Bubble’ (2011) 2 *AJOB Neuroscience* 38.

<sup>28</sup> For instance, to confer a competitive advantage to the child in comparison to his or her peers.

<sup>29</sup> A Schwarz, ‘Attention Disorder or Not, Pills to Help in School’ (*New York Times*, 9 October 2012) <[www.nytimes.com/2012/10/09/health/attention-disorder-or-not-children-prescribed-pills-to-help-in-school.html](http://www.nytimes.com/2012/10/09/health/attention-disorder-or-not-children-prescribed-pills-to-help-in-school.html)> accessed 20 November 2016.

<sup>30</sup> K Ray, ‘Not Just “Study Drugs” For the Rich: Stimulants as Moral Tools For Creating Opportunities For Socially Disadvantaged Students’ (2016) 16 *The American Journal of Bioethics* 29.

<sup>31</sup> S Sattler and I Singh, ‘Cognitive Enhancement in Healthy Children Will Not Close the Achievement Gap in Education’ (2016) 16 *The American Journal of Bioethics* 39.

psychiatric conditions, combined with a lack of understanding of their underlying causes, pose special challenges to ethics. These will now be briefly outlined, followed by a case study to emphasise their practical relevance.

## **9.5 Challenges of psychiatric disorders**

Psychiatric disorders tend to be “invisible”, in the sense that their diagnosis relies on clinical assessment of behavioural symptoms, which in the case of children are difficult to distinguish from normal childhood behaviours.<sup>32</sup> These disorders do not possess a discrete entity, and the current diagnostic manuals, DSM-V and the World Health Organization’s International Statistical Classification of Diseases and Related Health Problems (ICD-10), offer definitions that are best described as ‘a grab bag of symptoms that could easily also comprise many other diagnostic categories’.<sup>33</sup> This leads to obvious diagnostic difficulties, where both over- and underdiagnosis become likely, as has been the case with ADHD.<sup>34</sup> It is thus with good reason that the diagnostic validity of disorders such as ADHD continues to come under social and ethical scrutiny.<sup>35</sup>

### **9.5.1 Models of disability**

The lack of diagnostic clarity makes it difficult to determine the status of many psychiatric spectrum disorders, including ADHD and ASD. Whether these are considered a disability, impairment or simply an “inconvenience” depends on individual, cultural and temporal factors. Rather than acknowledging this

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<sup>32</sup> I Singh, ‘Beyond Polemics: Science and Ethics of ADHD’ (2008) 9 *Nature Reviews Neuroscience* 957.

<sup>33</sup> Davis, *The End of Normal: Identity in a Biocultural Era* (n 15) 46.

<sup>34</sup> Singh and Wessely (n 21).

<sup>35</sup> Singh (n 32).

uncertainty, however, the diagnostic manuals suggest authority and give the impression of clarity.<sup>36</sup> In addition, they rely heavily on a medical model to describe disease, which by itself is problematic not least because the United Nations Convention on the Rights of Persons with Disabilities has advocated for a social model.<sup>37</sup> The difference between the two models lies in the perspective taken with regard to disability. Whilst the medical model views disability as based on factors lying within the person, the social model draws a distinction between impairments of a person and the resulting disability arising through society's response to those impairments. Many disability rights advocates subscribe to the social model and reject a 'broken brain' theory in the case of psychiatric disorders, appealing instead to the concept of neurodiversity, according to which atypical neurological development is simply a normal human difference.<sup>38</sup> They fear that medicalisation of naturally-occurring neurological differences is used to justify intervention with undesirable traits and behaviours. This infringes the right to respect for persons with neurological differences, and they argue that non-medical solutions to disabling life circumstances would be more appropriate than treating the affected individual as intrinsically disabled. An important shortcoming of this view is its failure to appreciate the fact that at least some psychiatric conditions are associated with real pain and suffering, making the treatment of the underlying cause justifiable without necessarily constituting a threat to respect for the disabled person. Rather than relying on a purely social model of disability, it is thus more convincing to argue for

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<sup>36</sup> Davis, *The End of Normal: Identity in a Biocultural Era* (n 15) 83.

<sup>37</sup> United Nations Convention on the Rights of Persons with Disabilities: resolution / adopted by the General Assembly, 24 January 2007, A/RES/61/106.

<sup>38</sup> P Jaarsma and S Welin, 'Autism as a Natural Human Variation: Reflections on the Claims of the Neurodiversity Movement' (2012) 20 *Health Care Analysis* 20.

a combined approach.<sup>39</sup> This can also be seen from the case of ASD, which illustrates that the worries expressed by disability rights advocates are somewhat justified, as those affected by ASD have a long history of having to fight for their fundamental human rights and against coercive treatment.<sup>40</sup>

### **9.5.2 Autism spectrum disorder (ASD)**

Rather than there being merely an underlying medical issue which needs to be addressed, a ‘complex cultural and historical scenario’<sup>41</sup> presents itself in the case of psychiatric disorders, especially affective disorders. ASD is a suitable example, because it is not unlike ADHD or other psychiatric disorders, in that there are many overlapping diagnostic criteria, although ICD-10 currently precludes a dual-diagnosis.<sup>42</sup> While both used to be considered childhood disorders, adult diagnoses are increasingly being made, which in the case of ASD has led to very vocal communities raising awareness for the needs and interests of autistic individuals. This is yet to occur for ADHD to the same extent, although an adult ADHD community is emerging. At present, however, the VOICES project is the first of its kind in including affected individuals in the debate but focuses exclusively on children with ADHD.<sup>43</sup>

Like ADHD, diagnoses for ASD are on the rise<sup>44</sup> and the same gender-based issues arise with regard to over- and underdiagnosis.<sup>45</sup> In some cases, treatment attempts

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<sup>39</sup> T Shakespeare, *Disability Rights and Wrongs Revisited* (Routledge 2013) 36.

<sup>40</sup> A comprehensive account of the history of autism, its perception and treatment, is provided by S Silberman, *Neurotribes: The Legacy of Autism and How to Think Smarter About People Who Think Differently* (Allen & Unwin 2015).

<sup>41</sup> Davis, *The End of Normal: Identity in a Biocultural Era* (n 15) 83.

<sup>42</sup> BA Gargaro and others, ‘Autism and ADHD: How Far Have We Come in the Comorbidity Debate?’ (2011) 35 *Neuroscience & Biobehavioral Reviews* 1081.

<sup>43</sup> I Singh, ‘VOICES Study: Final Report’ [2012] London, UK.

<sup>44</sup> Singh, ‘Beyond Polemics: Science and Ethics of ADHD’ (n 32); Silberman (n 40).

have even involved the same psychoactive drugs, such as deanol.<sup>46</sup> The cause of ASD is still poorly understood. Fortunately, previously popular but unscientific theories about the origins of the disorder, such as the idea of so-called ‘refrigerator mothers’,<sup>47</sup> have now been largely abandoned. This means, however, that attempting treatment of the symptoms is the only option for parents of an autistic child. Over the last decades, questionable therapies and dubious drug regimens have all been marketed to desperate parents as ameliorating ASD, with little or no scientifically-proven success. A substance containing sodium chlorite, similar to industrial strength bleach, has been sold as “Miracle Mineral Supplement” (MMS) to parents as cure for their children’s autism, often with devastating health effects.<sup>48</sup>

Another popular treatment choice is Applied Behaviour Analysis (ABA), which in its most extreme form recommends 40 hours of Early Intensive Behavioural Interventions (EIBI) to teach children to abstain from their ‘autistic behaviour’, such as the self-stimulating behaviour known as ‘stimming’, which consists in the repetition of movements and/or sounds. The focus of ABA is on ‘socially significant behaviour’, which is criticised by many, not least for its defining of success as behaving like a neurotypical, i.e. a non-autistic, person. Amy Sequenzia, a non-speaking Autistic, and spokeswoman for the Autistic Self-Advocacy Network, argues

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<sup>45</sup> J Gould and J Ashton-Smith, ‘Missed Diagnosis or Misdiagnosis? Girls and Women on the Autism Spectrum’ (2011) 12 *Good Autism Practice (GAP)* 34; The National Autistic Society, ‘Gender and Autism’ <[www.autism.org.uk/about/what-is/gender.aspx](http://www.autism.org.uk/about/what-is/gender.aspx)> accessed 20 November 2016.

<sup>46</sup> Silberman (n 40) 358.

<sup>47</sup> *Ibid* 7.

<sup>48</sup> F Ryan, ‘The Fake Cures for Autism that Can Prove Deadly’ (*The Guardian*, 13 July 2016) <[www.theguardian.com/society/2016/jul/13/fake-cures-autism-prove-deadly](http://www.theguardian.com/society/2016/jul/13/fake-cures-autism-prove-deadly)> accessed 20 November 2016.

that this is unethical and abusive.<sup>49</sup> It is difficult to conclude on the effectiveness of ABA as treatment for ASD, because most of the evidence is anecdotal. However, even if empirical evidence were readily available, effectiveness alone cannot answer questions of ethics conclusively and some of the reports from previous ABA-patients urge us to be sceptical of this highly lucrative yet scientifically-unproven therapy, which Canadian autism researcher Michelle Dawson describes as reminiscent of ‘the past and current unethical treatment of other atypical human beings’.<sup>50</sup> This demonstrates that focusing merely on the results of the intervention clearly disrespects the autonomy of the individuals affected and raises important issues about the contemporary idealisation of the ‘normal’ in our culture.

The preceding discussion has highlighted the importance of thorough ethical reflection on paediatric neuroenhancement, which will impact further research and regulation of current and future neuro-enhancers. Most, if not all, biomedical technologies and interventions raise ethical concerns, whether they are based on bioethical principles,<sup>51</sup> the right to an open future,<sup>52</sup> or on human rights.<sup>53</sup> In the case of paediatric neuroenhancement, ethical concerns can be broadly divided into three categories: concerns about (future) autonomy, concerns about designing children,

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<sup>49</sup> S Parker, ‘Autism: Does ABA Therapy Open Society's Doors to Children, or Impose Conformity?’ (*The Guardian*, 20 March 2015) <[www.theguardian.com/society/2015/mar/20/autism-does-aba-therapy-open-societys-doors-to-children-or-impose-conformity](http://www.theguardian.com/society/2015/mar/20/autism-does-aba-therapy-open-societys-doors-to-children-or-impose-conformity)> accessed 20 November 2016.

<sup>50</sup> M Dawson, ‘The Misbehaviour of Behaviourists: Ethical Challenges to the Autism-ABA Industry’ (18 January 2004) <[www.sentex.net/%7EEnexus23/naa\\_aba.html](http://www.sentex.net/%7EEnexus23/naa_aba.html)> accessed 20 November 2016. Dawson herself was diagnosed with ASD as an adult and has continuously challenged the scientific foundation of ABA-based autism interventions. She has also challenged the medical necessity of such an intervention in the Supreme Court of Canada in the case of *Auton (Guardian ad litem of) v British Columbia (AG)* [2004] 3 SCR 657, 2004 SCC 78.

<sup>51</sup> TL Beauchamp and JF Childress, *Principles of Biomedical Ethics* (Oxford University Press, USA 2001).

<sup>52</sup> J Feinberg, ‘The Child's Right to an Open Future’ in William Aiken and Hugh LaFollette (eds), *Whose Child? Children's Rights, Parental Authority, and State Power* (Littlefield, Adams & Co. 1980).

<sup>53</sup> United Nations Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol. 1577.



and concerns about balancing public and private interests.<sup>54</sup> Although these are somewhat interrelated, individual analysis is helpful to tease out the fundamental ethical values at stake. This is crucial in the process of reaching moral (and legal) conclusions about the permissibility of paediatric neuroenhancement, and in developing an appropriate regulatory framework for such interventions, which in the light of scientific progress and societal demand appear unavoidable.

### **9.6 Key ethical issues arising from cognitive neuroenhancement**

As mentioned above, increases in diagnoses have occurred for several neurological disorders, such as ADHD and ASD, although the reason for this increase is not certain. While this might simply be due to more experienced physicians and better diagnostic methods, it is equally possible that social and cultural changes such as a shift towards more cognition-focused educational and work settings are responsible for the higher prevalence rates. Another alternative might be environmental causes, pollution or pathogens. Whatever the reason, since it implies that more children and young persons will likely become targets of treatment in one form or another, it is crucial to afford sufficient protection to the interests of these children, and to provide parents, teachers, and health care professionals with practical guidance on how to best address the challenges encountered. Where possible, deferral to the future when the children themselves can become involved in the decision-making process, such as whether to take psychoactive drugs, should be considered. Engaging young persons as early as possible, listening to their preferences and understanding their

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<sup>54</sup> Other ethical concerns are those based on justice and/or fairness, which typically arise whenever resources are limited or access is restricted. Since this applies to most if not all health-related interventions, they are excluded in the present context for brevity's sake and the focus is instead on those types of concerns that arise in the specific context of paediatric neuroenhancement. This is not to imply, however, that justice and fairness are less important in the overall ethical debate.

sense of self-identity is an important step towards respecting their (developing) autonomy. Research with adults has shown self-identity to be an important issue in the diagnosis and treatment of psychiatric illnesses, which suggest that it might be useful to repeat these studies in the context of children to discover their perspective.<sup>55</sup>

### 9.6.1 Autonomy

Arguments against enhancing children are often framed in terms of autonomy. One of the most prominent approaches is Joel Feinberg's right to an open future argument.<sup>56</sup> Although Feinberg was not writing about enhancement, he was concerned with protecting the future autonomy and self-fulfilment of children, which might be forfeited if the wrong decisions are made on their behalf. According to him, 'wrong' decisions are those which are of a limiting nature with regard to future self-fulfilment and autonomy. This means that decisions leading to a perceived overall benefit for a child could be considered wrong whenever they limit the child's capacity for making his own choices as an autonomous adult, because this would be an infringement of the child's right to an open future.

Whilst Feinberg's approach has significant intuitive appeal, the open future argument raises important questions in practice. It is not entirely clear, for instance, how this right can be reconciled with parental autonomy in raising children, given that most (if not all) decisions parents make with regard to their children's upbringing have an effect on their future lives. It would appear to imply that parents ought to adopt a precautionary approach, and refrain from making any decisions which *might* have

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<sup>55</sup> PW Corrigan and AC Watson, 'The Paradox of Self-Stigma and Mental Illness' (2002) 9 *Clinical Psychology: Science and Practice* 35; A Solomon, *Far From the Tree: Parents, Children and the Search for Identity* (Scribner 2013).

<sup>56</sup> Feinberg (n 52).

too great an impact on the type of person their child will become. Given that it is practically impossible to know the precise effect even small parenting decisions have on the child's developing autonomy, this appears unrealistic and too burdensome for parents, who need to deal with everyday issues and cannot spend too much time pondering on potential consequences every time they need to make a decision with regard to their child. In addition, it is quite likely that parents opting for any kind of enhancement do so precisely because they hope to advance the openness of the child's future. Finally, in the present context of paediatric neuroenhancement, it is important to be aware of the risk of 'biomedical enhancement exceptionalism',<sup>57</sup> because pharmacological means of enhancement are not intrinsically different from "ordinary" educational or parental interventions in a morally significant way. All things being equal, parental autonomy in raising children ought to be respected and decisions be left to parents. Interference is only justified where the child's welfare is actually at risk. In that regard, paediatric neuroenhancement, assuming it is generally safe and effective, is unlikely to pose a greater threat to a child's right to an open future than other parental choices.

### **9.6.2 Designing children**

It is entirely natural for parents to have hopes for their children, but even working from a "good parent" hypothesis, that is, the assumption that parents are genuinely concerned about their children's best interests and well-being, the issue of parental expectations can be somewhat of a tightrope walk. Parenting never happens in isolation, with parents being continuously subjected to significant and difficult-to-escape outside pressures, which are partly culturally determined, as well as internal

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<sup>57</sup> A Buchanan, *Better Than Human: The Promise and Perils of Enhancing Ourselves* (Oxford University Press, USA 2011) 10.

pressures. In much of the Western world, there appears to be increasing instrumental value in great cognitive capacities, because of the shift towards more brain-based work away from manual labour and the fact that being a productive member of the working population is crucial for one's social status within a society. There might thus be a danger that parents will succumb to pressures and attempt to shape their children in a way that makes them best fit into society, even if this means resort to neuroenhancement drugs.

This is problematic for two reasons: First of all, there is a threat posed to the child's healthy development by the parental expectations, which come with a decision to medicate a child, and a more general risk of instrumentalising children. Second, there is a risk of sacrificing the healthy parent-child relationship. With regard to the former, where prescription drugs are administered for neuroenhancement purposes, it is likely that parental expectations will be raised at least to some extent or there would be little reason for parents to agree to the medication in the first place. Although healthy development will allow children to grow into autonomous adults, children are not equivalent to small adults. Their development is a fragile enterprise and their future autonomy can be seriously threatened, not only by harmful decisions but also by excessive expectations and pressure put on the child. The effects of this can last a lifetime, and might lead to significant (mental) health problems.<sup>58</sup> The risks appear greatest where despite pharmacological intervention, children for one reason or another fail to perform as expected or even show signs of 'reduced functioning' (as might be the case, for instance, due to negative side effects to treatment, or a psychologically-based refusal to perform).

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<sup>58</sup> J Freeman, *Gifted Lives: What Happens when Gifted Children Grow Up* (Routledge 2013); KE Ablard and WD Parker, 'Parents' Achievement Goals and Perfectionism in their Academically Talented Children' (1997) 26 *Journal of Youth and Adolescence* 651.

Furthermore, there is a risk of compromising a healthy parent-child relationship, in which parents are responsible for the education and healthy development of their child. This might occur for instance when pharmacological means are used as a way to bypass educational efforts in raising children to achieve the goal of ‘proper functioning’ of the child. Administering neuro-enhancing drugs might become the shortcut to manipulate a child’s behaviour where there is a failure to comply with norms and expectations, rather than the more complicated process of explaining and convincing a child of the importance of such norms, values and beliefs. The complex task of education is seemingly simplified, making negotiations with the child superfluous. As a result, the child’s right to participate in her own development will be infringed<sup>59</sup> and she will be deprived of the ability to negotiate her own identity,<sup>60</sup> and the safe harbour that is the parent-child relationship can be put at risk as a result of the parents ‘siding’ with health care professionals or teachers, conveying the message that the child is somehow ‘not right’.

### **9.6.2 Private and public interests**

While there are obvious private interests, such as parents’ wish to ensure the health and well-being of their child, the public interest at play should not be underestimated. Successful treatment, or even cure, of a disorder will have a positive effect on the individual’s productivity, and implies a potential long-term reduction in health care costs and educational expenditure. Given the prospects of benefits of any enhancement not only for individuals but also for society at large (and thus the state), there is a need to protect children from being instrumentalised for “the greater good”.

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<sup>59</sup> UNCRC (n 53).

<sup>60</sup> Z Stein and others, ‘Ethical Issues in Educational Neuroscience: Raising Children in a Brave New World’ in Judy Illes and Barbara Shahakian (eds), *The Oxford Handbook of Neuroethics* (Oxford University Press 2011).

Potential gains in societal productivity are significant, which means that the incentive for neuroenhancement in children is very strong for the state.<sup>61</sup> In addition, the influence of the pharmaceutical industry is not to be underestimated: psychiatric disorders are a lucrative business, and parents desperately trying to improve their children's condition make easy targets. Intense political and economic interests bear on the formation and relevance of diagnostic categories, such as those found within the DSM, which can be seen from the transparency research showing that the rate of panel members with strong ties to the pharmaceutical industry continues to be extremely high.<sup>62</sup> As a result, psychiatric diagnoses might become more prevalent in order to allow parents to enhance their children, while at the same time increasing profits of private corporations.

The combination of conflicting interests of the parties involved and the general vulnerability of children make thorough ethical analysis in combination with empirical research absolutely critical. Many aspects of neuroenhancement are still under-researched, calling for independent interdisciplinary research followed by proper scrutiny of the results. This should include engagement of affected individuals to the extent possible, before professional medical, educational or parental guidance and a suitable legal framework can be developed. It will be important to strike the right balance between allowing and encouraging research to be undertaken to understand not only the conditions but also the effects of any interventions, while at the same time protecting vulnerable children's fundamental developmental rights.

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<sup>61</sup> A Buchanan, 'Enhancement and the Ethics of Development' (2008) 18 *Kennedy Institute of Ethics Journal* 1.

<sup>62</sup> L Cosgrove and S Krinsky, 'A Comparison of DSM-IV and DSM-5 Panel Members' Financial Associations with Industry: A Pernicious Problem Persists' (2012) 9 *PLoS Med* e1001190.

## 9.7 Conclusion

For an enhancement intervention to be deemed morally permissible, it is not sufficient that the means are not ethically wrong – the ends matter too. Therefore, a thorough ethical analysis of neuroenhancement necessarily involves an evaluation of the goals which are being pursued. Although these tend to be framed in general terms, such as the increase of a child’s well-being, a closer look reveals reliance on the notion of normalcy to justify interventions. To that effect, the risk of what could be called a ‘diagnostic creep’<sup>63</sup> in psychiatry is illustrated by ASD, which demonstrates the intrinsic problems of many psychiatric disorders, most notably their lack of diagnostic clarity and the disagreement as to whether neuroatypicality really ought to be medicalised and treated (and if so, how). Even a brief analysis of three broad categories of crucial ethical concerns arising from paediatric neuroenhancement highlights the difficulties in reaching a moral conclusion about the regulation of such interventions. For two reasons prohibition is not a feasible option: First, given the globalised world we live in and the steadily expanding cross-border medical travel industry, those desiring access and with the appropriate financial means would simply get access elsewhere; and second, despite the abovementioned inherent risks, there are also benefits to be obtained from at least some neuroenhancement interventions; the ethical problems arise from misuse rather than use. The appropriate response would thus not be to radically constrain research and development efforts, but rather to sensitise the public, health care professionals, teachers and parents to the ethical issues at play, and to develop a suitable regulatory framework capable of allowing interventions to proceed where this is in the best

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<sup>63</sup> I am grateful to an anonymous reviewer for this suggestion.

interests of the child whilst at the same time protecting children's emerging autonomy and their fundamental developmental rights.



## **PART III: CONCLUSION**

**“To find out what one is fitted to do, and to secure an opportunity to do it,  
is the key to happiness.”**

— *John Dewey*<sup>1</sup>

## **CHAPTER 10: Conclusion**

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### **10.1 Introduction**

I started the research for this thesis highly sceptical of cognitive enhancement, not least because of the way in which it was debated and presented to the public as a simple solution for many of the greatest problems of our times: health, poverty, justice and general well-being were all suggested as areas that would improve through enhancement efforts. There seemed to be a vast number of binaries underpinning the ethical discussion about whether or not cognitive enhancement could be justified – between treatment and enhancement, ability and disability and even good and bad, more generally. The feeling that ultimately prompted me to start the research for this thesis was a sense that this representation was too simplistic – that new enhancement technologies were unduly being promoted as the ultimate solution, reminiscent of a type of biomedical ‘solutionism’,<sup>2</sup> and that a more nuanced view was required for a sound ethical position and a conclusion about the morality of cognitive enhancement.

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<sup>1</sup> J Dewey, *Democracy and Education* (first published 1916, Kindle edn, Some Good Press 2011) 333.

<sup>2</sup> I borrow this term from Evgeny Morozov, who uses it to describe the idea that technology can be used to solve all of humanity’s problems. Although Morozov focuses on the Internet as technology, his claim that the drive to eradicate imperfection using modern technologies effectively hampers other forms of progress can be equally applied to biomedical technologies. See E Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (PublicAffairs 2013).

My starting point was to tease out the real subject of the ethical debate. Well-being quickly emerged as the common concern for most participants, and this was frequently divided into concerns about the welfare of children (present and future) and the general welfare of us all. From this, a number of questions followed; some initially appeared purely theoretical whilst others arose in an applied context. To address the gaps I had identified in the literature, I took a broad and interdisciplinary approach to analysing the ethics of cognitive enhancement in children, taking me beyond philosophy and law into the fields of developmental psychology and education. Most importantly, I tried to do this without prejudice and without relying on common assumptions about cognitive abilities and enhancement, constantly reminding myself of the importance of avoiding cognitive biases.<sup>3</sup>

What began with a *feeling* is now a thoroughly informed and differentiated opinion, which I will summarise below. A key learning was that, within this highly complex area of cognitive enhancement, one cannot easily decide on a pro or contra position, because the ethical issues that arise are not simple “Yes” or “No” questions. Rather, different points must be carefully weighed against each other and positions must be thoroughly negotiated in order to protect the welfare of children, including future cognitively enhanced children. This requires a practical approach, because the development of a position on cognitive enhancement based entirely on theoretical reflection is unlikely to be meaningful in practice, where it will impact on the lives of real children. A relevant example is the globalisation of medical and other services, which means that availability and access to enhancement technologies might not be

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<sup>3</sup> The presence of cognitive biases within the cognitive enhancement debate is discussed in L Caviola and others, ‘Cognitive Biases Can Affect Moral Intuitions About Cognitive Enhancement’ (2014) 8 *Frontiers in Systems Neuroscience* 1.

exclusively determined by an individual country's regulatory decisions.<sup>4</sup> In conclusion, I remain a neutralist on cognitive enhancement, but this does not mean that I suggest sitting on the fence in particular cases. Instead, I acknowledge the fact that, although we know a lot about human well-being, in ethical arguments partial knowledge is not sufficient, and appeals to well-being cannot function as a blanket justification for cognitive enhancement. Context matters greatly, and thus a relational approach is called for – one that takes into account the familial, cultural and temporal context within which enhancement decisions are made. A decision about the moral permissibility of cognitive enhancement in children can only be made on the basis of the facts of each individual case.

In this thesis, I have attempted to place the ethics of cognitive enhancement in children within the context of our societal reality, whilst drawing on many theoretical philosophical concepts. Thereby, I have addressed this important gap in the literature. In doing so, I have answered the following four questions within the thesis articles:

1. Can a welfarist approach be used to justify a moral obligation to cognitively enhance children?
2. What does the situation of gifted children under English educational law tell us about the treatment of future cognitively enhanced children?
3. Does the right to an open future argument suffice to protect the welfare of cognitively enhanced children?

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<sup>4</sup> It is easy to cross borders in order to access medical treatments prohibited in one's country of residence. J Glover, *Choosing Children: Genes, Disability, and Design* (Oxford University Press 2006) 77.

4. What role does the notion of normalcy play in definitions and diagnoses of psychiatric disorders to justify cognitive (neuro)enhancement in children?

The research conducted in addressing these questions resulted in the following key findings.

## **10.2 Key findings**

In my pursuit of an answer to the question of whether cognitive enhancement in children risks the creation of children with a disability of superior cognitive abilities, four main points emerged, relating to: the benefit of cognitive enhancement, the effect on parental responsibilities, the significance of the ends pursued and the importance of continuing research in this area.

### **10.2.1 It is crucial to determine the actual benefit of cognitive enhancement**

The first issue I encountered regarded the purported benefit of cognitive enhancement, which was often presented as the logical extension of the common assumption that greater intelligence is both intrinsically and instrumentally good. Certainly, any discussion about the moral permissibility of cognitive enhancement only makes sense if there is at least some expected benefit, and this was most frequently framed in terms of an increase in well-being. This struck me as plausible but unsatisfactory, because there was little scrutiny of the claim that enhancing cognitive capacities would positively influence well-being. Not only did the absence of a substantive notion of well-being make this difficult, but the empirical evidence was not given due consideration. To address this, in Article 1 (Chapter Six) I reviewed the welfarist approach to cognitive enhancement, according to which parents have a moral obligation to cognitively enhance their children based on the

claim that greater cognitive capacities positively impact on well-being. Since parents are generally considered to be morally obliged to promote their children's well-being, they have a duty to engage in activities that enhance cognitive capacities.<sup>5</sup> Concluding that no such moral duty could be justified, my criticism focused on three interrelated issues, which are outlined below. It is important to note that my objective was not to come up with a factual conclusion about the benefits of cognitive enhancement but rather to point out the deficits in the current debate and to make suggestions as to how these could be addressed.

### *Empirical evidence*

First, in the debate about the morality of cognitive enhancement, the benefits of great cognitive abilities cannot simply be assumed but must be informed by empirical evidence, insofar as this is possible. In the absence of actual cognitively enhanced children, the experiential lives of gifted children may provide a starting point in identifying the potential benefits of great cognitive abilities as well as any associated disadvantages. The latter includes potential compensating losses, wherein enhancement of some function causes a decrement in another.<sup>6</sup> There is an abundance of literature – including several longitudinal studies<sup>7</sup> – on the lives of gifted children in various countries, and this could help us understand the effects of cognitive enhancement. A full analysis of the available evidence would have far exceeded what is possible within one PhD thesis, considering that one of the most comprehensive studies to date – the Study of Mathematically Precocious Youth

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<sup>5</sup> See Chapter Six.

<sup>6</sup> This phenomenon is common. For example great memory skills often come with deficits in abstraction skills; see N Levy, 'Ecological Engineering: Reshaping Our Environments to Achieve Our Goals' (2012) 25 *Philosophy & Technology* 589, 600.

<sup>7</sup> See, for instance, J Freeman, *Gifted Lives: What Happens when Gifted Children Grow Up* (Routledge 2013) and DH Rost, *Hochbegabte und hochleistende Jugendliche. Befunde aus dem Marburger Hochbegabtenprojekt* (Waxmann Verlag 2009).

(SMPY)<sup>8</sup> – draws on a sample of more than 5,000 individuals and is approaching the end of its 50-year running period. A full analysis of this study would require skills that I do not possess.<sup>9</sup>

### *Potentiality*

Second, the importance of potentiality in the context of cognitive enhancement must be stressed, because the increase in cognitive capacities brought about by cognitive enhancement first and foremost results in an increase in *potential*. Greater cognitive capacities are not equivalent to greater achievement or success, and do not lead to these things unless they are put to further use in some way. Such capacities can thus be argued to be inert until a person both decides to and has the opportunity to explore their newly generated potential. Although the popular ‘ten per cent of the brain myth’ has been successfully refuted,<sup>10</sup> it is easy to think of examples of people who cannot fully utilise their brain’s potential because they lack the opportunity to do so (for instance, because poverty has prevented their access to appropriate education), and this would remain unaffected by cognitive enhancement. Arguably, the creation of new cognitive potential should come second to making use of existing potential, especially when the latter involves addressing pressing matters that threaten well-being, such as poverty, disease and lack of education.

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<sup>8</sup> Note that the name of the SMPY study is misleading, because verbal precociousness was also tracked: CP Benbow and JC Stanley (eds), *Academic Precocity: Aspects of its Development* (Johns Hopkins University Press 1983). An update on the 45-year results of the study was recently published in *Nature* magazine: T Clynes, ‘How to Raise a Genius: Lessons from a 45-year Study of Super-Smart Children’ (2016) 537 *Nature* 152, stressing the importance of nurturing of cognitive potential.

<sup>9</sup> Although I am very interested in this type of research, I am not a social scientist with the appropriate skills to interpret this kind of data.

<sup>10</sup> For a brief exploration of this durable myth that we only use a small portion of our brains, see R Boyd, ‘Do People Only Use 10 Percent of Their Brains?’ (*Scientific American*, 2008) <[www.scientificamerican.com/article/do-people-only-use-10-percent-of-their-brains](http://www.scientificamerican.com/article/do-people-only-use-10-percent-of-their-brains)> accessed 2 October 2016. For a full account, see BL Beyerstein, ‘Whence Cometh the Myth that we only use Ten Percent of our Brains’ in Sergio Della Sala (ed), *Mind Myths: Exploring Popular Assumptions about the Mind and Brain* (New York, NY: Wiley & Sons 1999).

## *Quantification*

Finally, the challenge of adequately quantifying cognitive capacities, in the sense of identifying an optimal level (or range), makes cognitive enhancement a seemingly directionless endeavour. As Michael Parker argues, ‘the active pursuit of the best possible life will be likely in practice to be disorienting’.<sup>11</sup> A moral duty to cognitively enhance one’s child cannot readily be discharged if no target level of cognitive ability can be identified, i.e. a range within which adverse consequences and accompanying losses are not so great as to constitute a reduction in overall well-being for the enhanced individual<sup>12</sup> In addition, if no such optimal level exists, attempts at cognitive enhancement might lead to a waste of scarce resources, because of an inherent risk of either going too far with the enhancement (which could prove detrimental to well-being)<sup>13</sup> or not going quite far enough (and thereby falling short of the point at which there is an improvement in well-being).<sup>14</sup> As argued in Chapter Six, the identification of a minimum threshold is quite plausible<sup>15</sup> but, beyond that, the effect of intelligence on well-being is likely to be negligible.<sup>16</sup>

In summary, this finding constitutes an important contribution to the current state of the debate, because insufficient attention has been previously paid to these points.

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<sup>11</sup> M Parker, ‘The Best Possible Child’ (2007) 33 *Journal of Medical Ethics* 279, 282.

<sup>12</sup> Ben Saunders makes a similar point in B Saunders, ‘Procreative Beneficence, Intelligence, and the Optimization Problem’ (2015) 40 *Journal of Medicine and Philosophy* 653.

<sup>13</sup> BD Earp and others, ‘When is Diminishment a Form of Enhancement? Rethinking the Enhancement Debate in Biomedical Ethics’ (2014) 8 *Frontiers in Systems Neuroscience* 1.

<sup>14</sup> This is not to say that in the absence of a quantifiable optimal level of cognitive ability, cognitive enhancement will necessarily constitute such a waste and should thus not be done. Compare this with loving one’s child, which might also be done in excess and lead to “love overload”. The fact that it can only be assessed *post hoc* should not be taken as an argument against loving one’s child, merely because the optimal level of love is difficult to establish and can be missed. On the historical development of enhancement from a notion of restoration to one of optimisation, see U Wiesing, ‘The History of Medical Enhancement: From Restitutio ad Integrum to Transformatio ad Optimum?’ in Bert Gordijn and Ruth Chadwick (eds), *Medical Enhancement and Posthumanity*, vol 2 (Springer 2008), 24.

<sup>15</sup> See Chapter Six, section 6.4.1.

<sup>16</sup> Saunders (n 12) 663. Saunders further claims that ‘it seems likely that the optimum with respect to expected wellbeing, is not at either end of the scale but at some mid-point.’ *Ibid*, 664.



Arguments have most often been advanced from a purely theoretical perspective, even when there is some “real life” evidence available. Admittedly, findings from giftedness research are unlikely to be fully transferable to the context of cognitively enhanced children, not least because the social environment into which enhanced children will be born will probably differ from the current one. But this does not imply that the findings should be readily dismissed as completely irrelevant. Instead, they should be considered valuable input for further reflection on the ethical issues that are likely to arise with regard to future children.

The point of my critique is not to make a case against cognitive enhancement, but to encourage a fuller discussion of the likely benefit by considering a broader range of issues, including the implication of greater cognitive capacities for the lives of actual children (and future adults). It is quite probable that, all things considered, cognitive enhancement will turn out to be beneficial for most people in most circumstances; but to ascertain this, I advocate for further research. Assuming a net benefit of cognitive enhancement, the question of moral permissibility becomes less contentious. What remains unclear, however, is whether such permissibility is contingent on some other factor, such as additional moral responsibilities that could flow from a decision to cognitively enhance a child. This leads to the second finding of my research.

### **10.2.2 Morally permissible cognitive enhancement entails enhanced responsibilities**

In line with the conclusion of my first article, I analysed some of the evidence on the lives and experiences of gifted children. Rather than focusing solely on qualitative studies and subjective accounts, I also reviewed the legal situation of gifted children

in England, as this is indicative of their current treatment within English society.<sup>17</sup> In Article 2 (Chapter Seven), I drew on the example of children with high learning potential – so-called ‘gifted’ children – within an educational context and concluded that, since the law currently fails gifted children, it is likely to also fail cognitively enhanced children.

I demonstrated that great cognitive capacities require additional intellectual stimulation and challenge, and these are not adequately provided within educational institutions designed for the ‘average’ majority. If this ‘special need’ is not addressed, the impact on psychological development could be disastrous, as several studies have suggested.<sup>18</sup> Despite legal provisions in English domestic law as well as the United Nations Convention on the Rights of the Child (UNCRC), which claim protection for the development of a child’s ‘full potential’,<sup>19</sup> this risk is not taken sufficiently seriously at present and the law demonstrates an asymmetry in its application to the needs of children. This asymmetry may be justifiable on the basis of policy, but it cannot be justified ethically.

As a result, the key finding was that assessing the moral permissibility of cognitive enhancement can only ever be a first step in a full and comprehensive ethical evaluation. Assuming that cognitive enhancement interventions are not intrinsically

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<sup>17</sup> Although the law or legal rules cannot be said to perfectly express the views and opinions of a society, public policy appears to be strongly influenced by public opinion: P Burstein, ‘The Impact of Public Opinion on Public Policy: A Review and an Agenda’ (2003) 56 *Political Research Quarterly* 29.

<sup>18</sup> Freeman (n 7). See also Potential Plus UK, (*Potential Plus UK website*) <[www.potentialplusuk.org](http://www.potentialplusuk.org)> accessed 20 August 2016.

<sup>19</sup> United Nations Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol. 1577, p. 3, article 29. Reference to this is also made in the guidance notes to the Children and Families Act 2014: Department for Education and Department of Health, *Special Educational Needs and Disability Code of Practice: 0 to 25 years* (2015).

*bad*,<sup>20</sup> the fact that they may be morally permissible does not mean that no additional moral responsibilities flow from a decision to cognitively enhance a child – comparable to the general parental responsibilities that follow from a decision to have a child in the first place. From an ethics perspective, if cognitive enhancement interventions in children are found to be morally permissible, the moral obligation parents have towards the promotion of their children’s well-being must be adjusted (“enhanced”), accordingly.

### *Enhanced moral responsibilities*

These enhanced moral responsibilities are largely identical in nature to the responsibilities parents generally have towards their children. The difference lies in their extent: whereas children with average cognitive capacities are adequately catered for within the educational system of schools, children with higher abilities require additional intellectual nurture and challenge, which is unlikely to be provided within the standard school setting. It is thus left to parents to ensure it is provided. Andrew Solomon quotes a musical prodigy who says that there should be an equivalent to a bar exam for parents of child prodigies.<sup>21</sup> The state, however, is under a duty to assist parents in fulfilling their educational duties and this should apply equally for high-ability children.<sup>22</sup> Arguably, the same moral obligation to tend to a child’s above average needs applies to parents of ‘naturally gifted’ (i.e. unenhanced) children. However, whilst parents of unenhanced gifted children might not always be

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<sup>20</sup> Cognitive enhancement interventions could be said to be intrinsically bad if they were in themselves harmful to the child. An example would be beating a child, if this could be shown to increase cognitive capacities.

<sup>21</sup> A Solomon, *Far From the Tree: Parents, Children and the Search for Identity* (Scribner 2013) 433.

<sup>22</sup> This duty is established in the UN Convention on the Rights of the Child (UNCRC), which came into force in the UK on 15 January 1992. All UK government policies and practices must comply with the UNCRC. United Nations Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol. 1577.

aware of their child's intellectual needs – especially when these deviate greatly from the parents' own – the same cannot be said for parents of deliberately enhanced children, because “knowledge and choice bring with them responsibility”.<sup>23</sup> When parents are or become aware of their children's special ability, the same enhanced duty should, however, apply.<sup>24</sup> The rationale for this is the fact that a child's developmental health is directly affected by his/her educational experience.

### *Effect on health*

Fulfilling this duty is important for the same reason that it is generally deemed important for children to receive an education in the first place. Ultimately, it relates back to well-being: preparing children for an independent, self-determined life in society.<sup>25</sup> In Article 2, I described how high cognitive ability children are currently discriminated against in the English educational system and explained that this can have detrimental effects on their mental health. This link between developmental health and education is a significant contribution to the cognitive enhancement debate, because the impact of education and educational institutions on the healthy development of future cognitively enhanced children has otherwise not been considered.<sup>26</sup> I argued for an extension of the debate to address concerns about the treatment of these children<sup>27</sup> and the responsibilities towards them once they are

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<sup>23</sup> M Brazier, 'Liberty, Responsibility, Maternity' (1999) 52 *Current Legal Problems* 359, 369.

<sup>24</sup> Even when the enhancing effect is the result of an accident, such as lightning strike, and parents become aware of this, the same responsibility could be said to apply. This is analogous to parents' need to provide a wheelchair following an accident rendering their child unable to walk.

<sup>25</sup> John Dewey famously urged us to see education not as mere preparation for life, but as life itself. See J Dewey, 'Self-Realization as the Moral Ideal' (1893) 2 *The Philosophical Review* 652, 660.

<sup>26</sup> At the time of writing, this remains true to the best of my knowledge.

<sup>27</sup> This would hopefully also help existing children with high learning potential.

created, rather than an exclusive focus on the moral and legal permissibility of cognitive enhancement, in general.<sup>28</sup>

In reflecting on the issue of responsibility towards cognitively enhanced children, the motives and reasons for enhancing are central. This is because such a choice is unlikely to be made for the sake of an increase in cognitive potential, alone; rather, there is likely to be another, further goal. Examples could be greater academic achievement, a better socio-economic status or better overall life prospects.<sup>29</sup> In order for a cognitively enhanced child to utilise his/her potential to achieve these goals, nurture is required; this leads back to the point about responsibility.<sup>30</sup> The motivation and goals behind cognitive enhancement decisions, in turn, affect whether an intervention can be deemed morally permissible. This point is often neglected in the debate, in which more attention is often paid to the means of enhancement.<sup>31</sup> This is the third key finding of my research – namely the importance of the ends that are pursued with cognitive enhancement in children.

### **10.2.3 Ends matter greatly in discussing the ethics of cognitive enhancement**

To conclude that a cognitive enhancement intervention is ethically permissible, both means used and ends pursued matter morally. They are separable in the sense that good things done for bad reasons are not necessarily morally wrong, but in the particular context of raising children the bad reasons or motives parents have for

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<sup>28</sup> This is an important point, because even in the absence of the agreed moral permissibility or legality of cognitive enhancement interventions, it is possible that cognitively enhanced children will be created through illegally performed enhancement or medical tourism, should technologies permit. Thus, the question of how these children should be created must be answered irrespective of moral permissibility.

<sup>29</sup> A further example could be parents' own desire to be mother/father to such a prodigy.

<sup>30</sup> An exception would be a case in which a child is cognitively enhanced purely for intrinsic reasons (i.e. because of a belief that greater cognitive capacities are intrinsically valuable). However, such a case would likely be rare, because the more common view is that cognitive capacities are instrumentally valuable (i.e. that they serve some further purpose), or a combination of both.

<sup>31</sup> Although, of course, this might prove difficult to police in practice.

their good decisions often ‘trickle through’ to the child. An example might be sending one’s child to an expensive school in order to gain social approval, implicitly teaching the child that the display of socio-economic status matters. In Article 3 (Chapter Eight), I made the criticism that, often, too much emphasis is placed on the means of enhancement, and this leads to discussions about the potential moral differences between conventional means (such as education) and emerging technologies (such as gene editing), at the expense of fully appreciating the moral importance of the underlying goals. This is unhelpful and unlikely to lead to meaningful conclusions, for two reasons: first, morally relevant differences tend to be artificially construed on the basis of individual preferences and emotional responses to certain types of enhancement; and second, it diverts attention from the objectives that are sought through enhancement, which have a significant impact on the welfare of children – much more than the choice of intervention, itself. This is not helped by the widespread reliance on the right to an open future argument to express concerns about (cognitive) enhancement interventions in children, because this argument suggests that the only worry is that a child will be deprived of the possibility to develop into an autonomous, self-determined adult; in fact, there are other threats to welfare that must be addressed. Reliance on the open future argument places too great an emphasis on choice, thereby suggesting that what matters most is the maximisation of choices. There is, however, an important difference between being able to make choices (in terms of having the capacity to do so) and having options to choose from (the intrinsic value of choice).

### *Matters of choice*

In Article 3, I pointed out a logical flaw in the argument of the intrinsic value of choice and presented some evidence that too much choice can reduce well-being. In

the present context of cognitive enhancement – but also increasingly in general reproductive choices<sup>32</sup> – further risks to well-being arise from our cultural and political realities. In *The Tyranny of Choice*, Renata Salecl describes how liberal democratic capitalism glorifies the idea of choice, but only in a consumerist model of choosing.<sup>33</sup> In medicine, this means that doctors are no longer considered authorities who make decisions for patients, but are simply seen as persons who present options for the patient to choose from.<sup>34</sup> The problem is that the ability to choose is accompanied by responsibility for the way in which we exercise choice,<sup>35</sup> and the burden of this responsibility is influenced by our political environment. Even if having choices appears desirable, overall, it is a fallacy to think that the availability of choice means that one is free. Salecl points to the ‘simplify your life’ movement to illustrate our ambivalent relationship with choice, which now seems to be more about responsibility and blame than about voluntary and free actions of individuals.<sup>36</sup>

The paradox is that the obsessive attitudes promoted by the ideology of late capitalism actually leave very little room for choice. The highly controlled individual who is constantly on guard, who dreads disorder and who is petrified by the thought of dying derives very little enjoyment from playing out the supposedly limitless possibilities of choice. He is in the grip of an

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<sup>32</sup> See M Soniewicka, ‘Failures of Imagination: Disability and the Ethics of Selective Reproduction’ (2015) 29 *Bioethics* 557. Soniewicka gives the example of the knowledge obtained from the Human Genome Project, which in combination with assisted reproduction technologies, is supposed to provide more reproductive choices. The author points out that “having more choices does not necessarily mean that the choices will be better”.

<sup>33</sup> R Salecl, *The Tyranny of Choice* (Profile Books 2011) 148.

<sup>34</sup> *Ibid* 53. See also the recent case of *Montgomery (Appellant) v Lanarkshire Health Board (Respondent) (Scotland)* [2015] UKSC 11, wherein this formed part of the decision when it was argued that ‘patients are now widely regarded as persons holding rights, rather than as the passive recipients of the care of the medical profession. They are also widely treated as consumers exercising choices: a viewpoint which has underpinned some of the developments in the provision of healthcare services.’ *Ibid* [75].

<sup>35</sup> J Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton University Press 2007) 118-19.

<sup>36</sup> Salecl (n 33) 142.

anxiety about failing to be the ideal ‘chooser’. So he invents ever new ways of restricting choice.<sup>37</sup>

Where cognitive enhancement of children is concerned, the impact of the burden of choice will be twofold: first, in deciding whether or not to enhance their children, there will be immense pressure on parents to “get it right”, and a failure to do so will be met by blame; second, the cognitively enhanced children, themselves, will be affected, because their greater cognitive abilities may be equated with the ability to pick the best from a maximum number of available life options. This will include the decision of who one will become – a decision that lies at the heart of the right to an open future argument, which is concerned with the ability to become a fully autonomous and self-determined individual. Since greater cognitive capacities would appear to further this ability, the right to an open future argument, alone, cannot explain what might be deemed morally problematic about cognitive enhancement.

*Shortfalls of the right to an open future argument*

In the present context, the right to an open future argument is not sufficient to protect the welfare of children, because in some probable scenarios the risk of harm to children is independent of threats to the openness of the future. One such example is the scenario of preconception cognitive enhancement by selection, wherein gamete donors are used to create children with higher cognitive capacities. The ethical difficulties with such a procedure cannot be explained in terms of the right to an open

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<sup>37</sup> Ibid 134.



future, because the procedure results in children being born who would not otherwise have existed: there is a non-identity problem.<sup>38</sup>

Another example is the scenario of using pharmacological means to improve the educational outcomes of children with a low socio-economic status; such practice can be considered ethically problematic for a number of reasons.<sup>39</sup> The open future argument, however, is not very helpful, because improved educational outcomes are generally conducive to a better life outcome, and this could be construed as an argument in favour of this type of cognitive enhancement, precisely because it would appear to allow for a more open future.

Finally, when cognitive enhancement is applied post-conception, it is sometimes argued that self-knowledge that one has been enhanced is harmful. Amongst those who make such a claim are Jürgen Habermas<sup>40</sup> and Michael Sandel.<sup>41</sup> Although they do not explicitly refer to the open future argument, their argument is essentially framed in terms of an open future, which a person is deprived of by the knowledge of having been enhanced. This is unconvincing for two reasons: First, it is unclear why biomedical enhancements should be unique in affecting one's sense of identity in a morally significant way while other parental decisions involved in raising a child should not.<sup>42</sup> Indeed, Sandel acknowledges that other 'hyperparenting'<sup>43</sup> choices are

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<sup>38</sup> D Parfit, *Reasons and Persons* (Oxford University Press 1984). In Chapter Three, section 3.3.3, I outlined various ways in which cognitive enhancement could be said to affect identity beyond the use of PGD for selection, including the active treatment of embryos and/or children.

<sup>39</sup> These were discussed in Chapters Eight and Nine, and include concerns about future autonomy and the treatment of children as mere means.

<sup>40</sup> J Habermas, *The Future of Human Nature* (Polity 2003). See also Chapter Two, section 2.2.1 above.

<sup>41</sup> MJ Sandel, *The Case Against Perfection* (Harvard University Press 2009) 27. Sandel argues for the importance of recognising the "giftedness of life". See also Chapter Two, section 2.2.1.

<sup>42</sup> Allen Buchanan argues that it is important to avoid this kind of "biomedical enhancement exceptionalism": A Buchanan, *Better Than Human: The Promise and Perils of Enhancing Ourselves* (Oxford University Press 2011) 10.

<sup>43</sup> Sandel (n 41) 52.

as problematic as ‘bioengineering’ for a child’s well-being, but takes this as a reason for questioning current parenting practices more broadly, rather than accepting biomedical enhancement.<sup>44</sup> Second, mere belief that one’s future is predetermined by decisions that have been made by third parties (such as one’s parents) does not render that belief factually accurate. Sandel fears for the loss of the sense of “giftedness of life” but fails to provide the necessary evidence that the pursuit of enhancement leads to parents believing they are ‘masters of the human condition or could ensure that their children will turn out the way they want them to’.<sup>45</sup>

Thus, it seems that if what matters most, morally, is the welfare of children, we must look beyond the open future argument to address the moral concerns that exist outside of this particular worry. In Article 3, I argued that these concerns can best be identified by focusing on the purported goals and pursued ends of cognitive enhancement of children.

### *The significance of ends*

It is important to note that ends are not equivalent to outcomes. Whilst the former describe the motives and reasons for a decision to cognitively enhance a child, the latter are the actual results or consequences of such a decision. For obvious reasons, outcomes can only be assessed after a child has been cognitively enhanced. This suggests that moral permissibility on the grounds of outcomes can only be established probabilistically, or in retrospect. Given the current uncertainties surrounding cognitive enhancement, in general, and the lack of empirical evidence on actual outcomes, it seems inadequate to base moral permissibility on likely

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<sup>44</sup> Ibid 61-62.

<sup>45</sup> A Buchanan, ‘Enhancement and the Ethics of Development’ (2008) 18 Kennedy Institute of Ethics Journal 1, 26. Buchanan contends that ‘the only practical import of the “giftedness” argument is a warning not to pursue enhancements without limit’: Ibid 27.

outcomes. In contrast, the ends pursued are not uncertain and can be more readily assessed.

In Article 3 (Chapter Eight), I raised the issue of parental expectations weighing heavily on the well-being of cognitively enhanced children without necessarily limiting the openness of the child's future. In cases of deliberate cognitive enhancement, such expectations are likely to be greatest, because they were agreed to originally with a specific objective in mind. Added to this might be broader societal goals, such as placing the responsibility to 'make the world a better place' on children with the greatest cognitive capacities.

Crucially, judging the morality of cognitive enhancement on the basis of the ends pursued is not straightforward, because cognitive enhancement might be beneficial for the individual child, even when the ends pursued appear objectionable.

The frequency of the word *might* in this section is indicative of the many uncertainties relating to cognitive enhancement in children and suggests that there are too many unknowns to conclusively determine whether cognitive enhancement is good or bad. My final finding is therefore that further research is urgently required.

#### **10.2.4 Researching cognitive enhancement remains important**

In Article 4 (Chapter Nine), I presented the case of the diagnosis of psychiatric disorders to access cognitive enhancement for children. The currently limited possibilities for enhancement mean that interventions are largely pharmacological, in the form of psychoactive drugs such as methylphenidate, amphetamine and modafinil.<sup>46</sup> Nevertheless, it is clear that cognitive enhancement is already happening

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<sup>46</sup> These are most commonly known by their respective brand names Ritalin, Adderall and Provigil.

and uptake appears to be increasing.<sup>47</sup> The treatment and enhancement line has become blurred in practice, as well as in theory.

Many of the concepts that underlie the cognitive enhancement debate are still poorly understood: from the workings of intelligence to psychiatric disorders and neuroatypical identities, our knowledge and understanding is still only rudimentary. Intelligence, for example, has been researched for decades, and though some genetic links to pathologically low levels of intelligence have been identified, almost nothing is known about such links to differences within the normal range of intelligence.<sup>48</sup> This, combined with the growing interest in enhancement, makes thorough research essential. Importantly, such research should not only draw on clinical and medical expertise but should also incorporate the views of those who are affected and likely to be affected.

#### *Inclusive research*

The neurodiversity movement demonstrates that the experience of people with psychiatric conditions sometimes varies significantly from the perception of mere bystanders. At the same time, nobody can speak for everybody, which means that the breadth of preferences must be properly captured within any credible research endeavour. Therefore, the voices of children with high learning potential should be included, as they could provide valuable insights to inform the continuing cognitive enhancement debate. The same consideration must be given to the subjective value of greater cognitive abilities for the individual as is currently given to the supposed

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<sup>47</sup> Particularly in the developing world: I Singh, 'Beyond Polemics: Science and Ethics of ADHD' (2008) 9 *Nature Reviews Neuroscience* 957.

<sup>48</sup> HT Greely, *The End of Sex and the Future of Human Reproduction* (Harvard University Press 2016) 117.

objective value of these abilities. This would serve as a suitable starting point for determining the benefit that can flow from cognitive enhancement.

### *Benefits*

There is sufficient evidence that at least some children currently benefit from cognitive enhancement interventions, though these are arguably best described as cases of treatment, rather than enhancement.<sup>49</sup> However, as I have argued above, such a distinction is morally unimportant,<sup>50</sup> and treatment and enhancement are intrinsically linked in the sense that they rely on the same kind of research and the resulting interventions are similar, if not identical.<sup>51</sup> In addition to benefitting the individual child, enhancement interventions could potentially benefit the overall society, possibly in the form of an increase in productivity leading to gains in human well-being.<sup>52</sup> This possibility must be explored with caution, however, because – framed in this way – it is immediately apparent how the state might take a strong interest in encouraging cognitive enhancement in children. Individual rights must be protected against overly paternalistic state involvement in private lives.

In summary, the importance of continuing research results from the need to replace vague ideas and assumptions about the consequences of cognitive enhancement with empirical evidence and real knowledge. The task of delineating the benefits and risks of cognitive enhancement is complex and necessarily draws on various academic and professional disciplines to compare the efficacy and value of enhancement methods.

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<sup>49</sup> For example, in studies involving children with ADHD, numerous children have reported significant improvement in their behaviour and self-confidence as a result of taking medication: I Singh, 'VOICES Study: Final Report' [2012] London, UK.

<sup>50</sup> See Chapter Two, section 2.2.1.

<sup>51</sup> R Brownsword, 'Regulating Human Enhancement: Things Can Only Get Better?' (2009) 1 *Law, Innovation and Technology* 125, 132.

<sup>52</sup> Buchanan, 'Enhancement and the Ethics of Development' (n 45) 28.

As part of this process, it would be desirable to engage the general public, whose views on cognitive enhancement interventions would expose many cultural and social biases and shed light on the way in which the debate is currently tainted by the notion of normalcy.<sup>53</sup> The transparency of any underlying preconceptions and misunderstandings would allow them to be properly addressed in a carefully moderated public debate<sup>54</sup> and hopefully lead to the development of morally robust policies.

Having summarised the four key findings, it is now time to propose at least a modest answer to the overall question of my thesis, before making some suggestions for future research.

### **10.3 The risk of creating ‘superhuman’ disabled children**

The topic of this thesis was whether the enhancement of intellectual abilities in children is likely to lead to the creation of ‘superhuman’ disabled children; that is, children with superior or even yet-unseen cognitive capacities who are disabled in some sense (medically, socially or both). Implicitly, this question is about the welfare of cognitively enhanced children. Disability, as I have demonstrated, is a complex issue and, in the absence of a belief that it necessarily makes life *bad*, it is not the

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<sup>53</sup> As Stein and colleagues warn, ‘coercive biomedical interventions can be used to insulate cultural norms from criticism’: Z Stein and others, ‘Ethical Issues in Educational Neuroscience: Raising Children in a Brave New World’ in Judy Illes and Barbara Shahakian (eds), *The Oxford Handbook of Neuroethics* (Oxford University Press 2011) 818.

<sup>54</sup> The discussions following the recently aired documentary, “*A World Without Down’s Syndrome?*” serves as an example of people’s struggle to distinguish between ethical arguments and personal convictions and emotions. In this case, it was apparent that most participants failed to see the differences in arguments relating to existing persons with disabilities and those relating to potential children. See S Phillips and C Richards, *A World Without Down’s Syndrome?* (BBC Two 2016). The *Guardian* published a series of reviews, letters and comments on the documentary: <[www.guardian.com](http://www.guardian.com)> accessed 10 October 2016.

status of disability that matters morally but knowledge that future cognitively enhanced children will be able to achieve well-being in their lives.

It is difficult to answer this question conclusively, considering that we cannot yet know what these children will be like and what their specific needs will be, or what the world will be like once they come into existence. As I have maintained throughout this thesis, however, the contexts will largely determine whether or not future cognitively enhanced children will be well, all things considered. As Michael Parker explains:

[T]he conditions conducive to the possibility of a good life are at least as much to do with the broader social, political, economic and environmental contexts in which people live as they are to do with their biological make-up, or the make-up of their family.<sup>55</sup>

This applies to enhanced children as much as to children, in general. With regard to cognitive capacities, specifically, an important factor for individual well-being is the match between intellectual capacities and the tasks that are set.<sup>56</sup> This can be positively influenced, as I argued in Article 2 (Chapter Seven) with regard to special needs education. As it seems unlikely that the emergence of cognitively enhanced children can be avoided, our society must assume responsibility for the welfare of these future children. In doing so, we might also improve the welfare of existing children at the edges of normalcy.

In this sense, the rise of biomedical enhancement technologies might be seen as an opportunity to choose an appropriate ‘dominant cooperative scheme’ – a term Allen

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<sup>55</sup> Parker (n 11) 281.

<sup>56</sup> T Tännsjö, ‘Ought We to Enhance Our Cognitive Capacities?’ (2009) 23 *Bioethics* 421, 436.

Buchanan uses to describe ‘the dominant infrastructure for productive interaction’ that ultimately determines who, within a society, will and will not be disabled.<sup>57</sup> Such a scheme describes the rules by which a particular society operates – such as requirements that individuals must be literate and numerate for effective participation – and which may vary between cultures.<sup>58</sup> The choice of scheme is a matter of justice, because it determines a person’s opportunities and life prospects within a society. This choice affects everybody, not merely those at an obvious disadvantage:

Just as those who are disabled, and hence not able to participate effectively in a cooperative scheme, are at a disadvantage, so those who could participate in a more productive and rewarding scheme, but are barred from doing so, also lose something of value.<sup>59</sup>

For children with higher cognitive abilities, this value lies in the opportunity to develop their intellectual potential to the fullest, which they are currently held back from in their educational context. This is a problem of justice, and one that will be shared by future cognitively enhanced children, at least until they form the majority.<sup>60</sup>

In the next section I provide some suggestions as to how this could be addressed.

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<sup>57</sup> A Buchanan, ‘Choosing Who Will be Disabled: Genetic Intervention and the Morality of Inclusion’ (1996) 13 *Social Philosophy and Policy* 18, 40-41.

<sup>58</sup> *Ibid* 40.

<sup>59</sup> *Ibid* 42.

<sup>60</sup> If cognitive enhancement were to become widespread, it is likely that the ‘dominant cooperative scheme’ would treat the unenhanced unjustly.



#### **10.4 Where next?**

Although this thesis has addressed the narrow question of the welfare of cognitively enhanced children, it has brought to light a broad range of issues from an array of disciplines. Giving these the attention they deserve unfortunately exceeds what is possible within one PhD thesis.

By linking empirical evidence about the lives of children with high learning potential, their experiences within the English educational system and the current debate about the moral permissibility of cognitive enhancement in children, this thesis fills the gap between moral theory and social science research in the present context.

Ideally, I would hope that the research in this thesis will provide useful input for important policy matters and be used in discussions with the wider public. This latter point is especially important, because it seems that the public is too often confronted with extremes of overly optimistic or fearful accounts of what cognitive enhancement could potentially lead to. Instead, a point should be made of educating the public responsibly by providing scientific and intelligible information that will enable the formation of informed opinions.<sup>61</sup>

Since there are a number of important aspects that I have not been able to consider in depth, I will now introduce them briefly and explain their relevance to the present topic. The three most important follow-up research questions concern the regulation

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<sup>61</sup> The role of bioethicists in this is up for debate. Personally, I find some representations in the popular press worrisome, because they paint an overly optimistic picture resembling the kind of 'solutionism' I have criticised, suggesting that biomedical technologies might fix many social problems for which there may well be other (preferable) solutions. As an example, Robert Sparrow points out that Julian Savulescu, the director of the Oxford Uehiro Centre for Practical Ethics, has frequently promoted human enhancement in the mass media: R Sparrow, 'A Not-So-New Eugenics' (2011) 41 *Hastings Center Report* 32, 33.

of cognitive enhancement, the concept of disability and the allocation of resources. These are outlined below.

#### **10.4.1 Regulating cognitive enhancement**

In this thesis I have not addressed the issue of regulation in any detail. In Chapter Three, the current legal rules under English law with regard to the treatment of embryos were outlined, but whether or not these will be invoked will depend on the specifics of the enhancement technique.<sup>62</sup> If an intervention were to become available that does not require access to assisted reproduction, the current legal rules would be in vain; but in light of the state of science, this seems unlikely. Assuming the existing law would apply, three options regarding the regulation of cognitive enhancement appear: prohibition, regulation and unregulated permissibility. The latter option can be dismissed as undesirable at this stage, because of concerns for the welfare of children, which has been the substance of this thesis. Prohibition, as the other extreme, is also unsatisfactory and there are many convincing arguments against it.<sup>63</sup> Negatively formulated, outright prohibition is likely to be practically ineffective in a globalised society in which ‘medical tourism’ is both possible and rife.<sup>64</sup> More positively expressed, though, a blanket prohibition would deprive those who stand to benefit from cognitive enhancement of the opportunity to do so, and this would be difficult to justify, at least in some extreme cases. In addition,

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<sup>62</sup> See Chapter Three, section 3.4.1.

<sup>63</sup> It would be difficult to word such a blanket ban, but a prohibition along the lines of the current prohibition of sex selection for non-medical purposes would be conceivable. The Human Fertilisation and Embryology Authority, *Code of Practice* (8th Edition, 2009), guidance note 10 <[www.hfea.gov.uk/496.html](http://www.hfea.gov.uk/496.html)> accessed 15 November 2016.

<sup>64</sup> Jonathan Glover suggests that bans or regulation in some countries might lead to ‘genetic tourism’: Glover (n 4) 77.

prohibition would likely affect research efforts, meaning that the discovery of the mechanisms that cause disease and suffering would be impeded.<sup>65</sup>

This leaves the middle ground – namely legal permissibility subject to regulation. Precisely how cognitive enhancement should be regulated is beyond the scope of this thesis, but the general principle of consideration for the welfare of children should inform any prospective legal rules. Access to cognitive enhancement interventions should lead to the ‘enhanced responsibilities’ I mentioned above, which means that a decision in favour of cognitive enhancement should be accompanied by additional parental obligations towards their children – specifically a duty to ensure appropriate education. Whether such a moral duty is sufficient to justify a corresponding legal duty is a difficult question, because taking legal action against parents who are struggling to parent their high-ability child is unlikely to advance the welfare of that child.<sup>66</sup> A more promising approach would appear to be for the state to assume responsibility for meeting the special needs of cognitively enhanced children (and hopefully also for their unenhanced highly cognitively able counterparts) by ensuring adequate educational provision. This seems fair, because not only would the state benefit significantly as a result of the child’s cognitive enhancement, but it is already within the state’s duties to provide the infrastructure to assist parents in educating their children. Given the potential gains for the state as a result of widespread cognitive enhancement, it is also not unlikely that legal permissibility might be complemented by a policy of state encouragement. In this case, the argument for supporting parents would be strengthened, because even if the decision of whether to enhance a child were to be up to parents, the availability of such choices would

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<sup>65</sup> See section 10.2.4.

<sup>66</sup> Brazier (n 23) 385.

necessarily imply that they should be made; this might be burdensome and detrimental to parents' relationships with their children.<sup>67</sup> This case is comparable to that of antenatal testing for disease and disability: the availability of tests effectively renders it a non-choice.<sup>68</sup> Responsibility and blame can weigh heavily on parents and might have negative effects on their parenting experience. Where cognitive abilities are concerned, parents might feel they must opt in, even if they do not believe in the great value of such capacities. Once they have opted in, however, expectations are likely to rise and blame for lack of achievement in light of greater cognitive abilities might shift to the child as a consequence of parental disappointment. In addition, humans are demonstrably incapable of adequately predicting what will be good for them, and this has adverse consequences for others as well as themselves.<sup>69</sup>

This highlights the complexity of regulating cognitive enhancement, given the different individual and collective interests at play. As Peter Whitehouse summarises:

Considerations might arise at both the individual and social levels of analysis, and the two levels are not tightly linked. It is possible to object to cognitive enhancers, claiming that it would be wrong for individuals to use them, and nevertheless conclude that, on the whole, society would be better off not trying to prohibit them. On the other hand, it is not inconsistent to claim that

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<sup>67</sup> See Chapter Eight.

<sup>68</sup> See R Bennett, 'Antenatal Genetic Testing and the Right to Remain in Ignorance' (2001) 22 *Theoretical Medicine and Bioethics* 461.

<sup>69</sup> Levy (n 6) 594-95.

the use of cognitive enhancers is morally permissible for the individual user, but that society is better off if they are prohibited.<sup>70</sup>

The impact of cognitive enhancement on individuals and on social institutions, and how this impact should be responsibly addressed through regulation, is the first topic recommended for further research.<sup>71</sup>

The second follow-up question concerns the concept of disability.

#### **10.4.2 Enhanced cognitive disability**

Cognitive enhancement will have a profound effect on the perception and definition of cognitive disability, because it will necessarily influence the prevailing idea of normalcy, in both a statistical and a normative sense.<sup>72</sup> The value that we, as a society, attach to different traits remains one of the major ethical issues in the context of cognitive enhancement. Discrimination awareness has increased for characteristics such as race and gender, with corresponding laws now offering protection where awareness falls short of preventing discrimination.<sup>73</sup> Other traits, however, remain deeply value-laden, and cognitive ability appears to be at the forefront of politicised non-disease traits.<sup>74</sup> This will, in all likelihood, be exacerbated by the emergence of cognitively enhanced children in two ways.

First, on an individual level, children might be disadvantaged in their social setting.

Although it is often argued that non-disease traits are morally neutral, this argument carries little meaning in practice, because people consistently face discrimination on

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<sup>70</sup> PJ Whitehouse and others, 'Enhancing Cognition in the Intellectually Intact' (1997) 27 *Hastings Center Report* 14, 18.

<sup>71</sup> Ibid 20. See also P Singer, 'Parental Choice and Human Improvement' in J. Savulescu and N. Bostrom (eds), *Human Enhancement* (OUP Oxford 2009), who expresses concern about collective action issues and justice in a global context when it comes to genetic enhancement.

<sup>72</sup> See Chapter Two, section 2.2.2.

<sup>73</sup> For the relevant legal rules, see Chapter Four, section 4.4.

<sup>74</sup> Solomon (n 21) 413.

the basis of exactly those supposedly neutral traits.<sup>75</sup> The educational system in England has been shown to treat children with greater intellectual abilities unequally to their peers,<sup>76</sup> and the situation is similar in the United States of America, where there appears to be a distinct bias against excellence within the educational system.<sup>77</sup> As long as the most cognitively able are in a minority, they will suffer the disadvantages of their disabling ‘condition’, and this may lead many children to hide their true ability in an attempt to avoid being ostracised as ‘brainy’.<sup>78</sup> In this way, high learning potential and disability are remarkably similar,<sup>79</sup> because both lead to the confrontation of obstacles within society that Andrew Solomon describes as ‘manifestations of our fear of people who are radically different’ in the form of pity for the disabled and resentment for the talented.<sup>80</sup> He concludes that as ‘[w]e help the disabled in a quest to make a more humane and better world; we might approach brilliance in the same spirit’.<sup>81</sup>

If cognitive enhancement becomes so widespread that a majority of children have higher cognitive capacities, their situation as a group might improve if educational and social institutions are adjusted to cater for the new ‘normal’. As a consequence of this development, the politicisation of the trait will progress by way of what I call “cognitive elitism”.<sup>82</sup> This means that increasing focus will be placed on cognitive abilities and skills, as is already happening in the workplace with the increasing

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<sup>75</sup> Sparrow (n 61) 35.

<sup>76</sup> See Chapter Seven, section 7.4.

<sup>77</sup> Solomon (n 21) 457. In the US, the Americans with Disabilities Act of 1990 does not cover gifted children, <[www.ada.gov](http://www.ada.gov)>, and the No Child Left Behind Act of 2001 also provides little support for gifted children: <[www2.ed.gov/policy/elsec/leg/esea02/index.html](http://www2.ed.gov/policy/elsec/leg/esea02/index.html)>, both websites accessed 20 November 2016.

<sup>78</sup> Solomon (n 21) 458.

<sup>79</sup> Ibid 405.

<sup>80</sup> Ibid 471.

<sup>81</sup> Ibid 471.

<sup>82</sup> Linda Gottfredson argues that the trend towards increased cognitive complexity poses a challenge for modern democracies, because it leads to social inequalities: LS Gottfredson, ‘What Do We Know About Intelligence?’ (1996) 65 *The American Scholar* 15.

disappearance of menial jobs.<sup>83</sup> Whilst this trend reflects our current political system, the risk lies in devaluing persons due to their low-ability variant of the trait, with deleterious effects on their well-being. There is no intrinsic reason why persons with high cognitive capacities should lead a better life than persons with lower ones, unless the notion of the good life is based predominantly on factors that are important within a capitalist society (in which case high cognitive ability has great instrumental value).<sup>84</sup> The prevalence of cognitive enhancement would accelerate such a trend and result in a shift in who is considered disabled, at least in a social sense. Empirical evidence already indicates that higher intelligence levels correlate strongly with better overall life outcomes, while below average intelligence almost always leads to low socio-economic status.<sup>85</sup> Maybe a parallel aim to developing cognitive enhancement techniques should be to work towards a world in which *good* lives can be lived, regardless of one's position on the Bell curve of a certain trait or one's ability to solve complex problems.

The preceding discussion illustrates the practical difficulty of developing a satisfactory working definition of disability – one that is neither all-encompassing

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<sup>83</sup> The percentage of people working in managerial, professional and technical jobs has increased significantly over the course of the last century: JR Flynn, *What is Intelligence? Beyond the Flynn Effect* (Cambridge University Press 2009) 144. This means that a lower IQ threshold is required to gain access to these professions. However, in practice, this development coincides with the so-called “Flynn effect” – namely a rise in measured intelligence, which Flynn himself attributes to modernity: more intellectually demanding work, greater use of information technology and reduced family size have contributed to the improvement of people's ability to manipulate abstract concepts, such as hypotheses and categories. Ibid, 42-44, 108. In practice, less cognitively able members of society remain at a relative disadvantage, because progress in automation technologies, machine learning and artificial intelligence means that fewer human workers are required to fulfil even complex tasks; this trend is likely to only increase in the future. For a discussion of the way in which computer technology has taken over many middle-income jobs see D Rotman, ‘How Technology is Destroying Jobs’ (2013) 16 *Technology Review* 28.

<sup>84</sup> It is possible that there is a causal relationship between this political reality and increasing interest in cognitive enhancement, although I gladly leave the question of the direction of this flow up to political scientists to figure answer. Arguably, a greater ability to enjoy the arts and literature and to engage in the joys of the mind leads to a better life, but this presupposes that a person with these abilities has the opportunity to exercise them. See the discussion on flourishing and the capability approach in Chapter Three, section 3.1.

<sup>85</sup> LS Gottfredson, ‘Why g Matters: The Complexity of Everyday Life’ (1997) 24 *Intelligence* 79.

nor restrictive. John Harris simply defines it ‘as a condition that someone has a strong rational preference not to be in and one that is moreover in some sense a harmed condition’,<sup>86</sup> but this does not mean that one cannot have a rational preference for being *labelled* disabled. This is important because access to financial and other resources to compensate for an individual’s disadvantages, be these medical or social, depends on a disability label. Extra time in an exam is one example of a compensatory resource,<sup>87</sup> access to psychoactive drugs another.<sup>88</sup>

The availability of effective cognitive enhancement will further complicate the assessment of who is in need of extra support. However, as I have argued throughout this thesis, reliance on the concept of disability is unlikely to yield satisfactory outcomes. Investigating alternative solutions to this dilemma is outside the remit of this thesis, but is recommended for follow-up research.

Following from this is the final topic that must be tackled – namely the allocation of resources in the context of cognitive enhancement.

#### **10.4.3 Allocating resources for enhancement**

The purpose of this thesis was to evaluate specifically any ethical issues that arise from the cognitive enhancement of children. However, such an evaluation necessarily touches upon broader ethical concerns. Most importantly, I have not had the space to address the fair allocation of resources, though the subject has been present, implicitly, throughout this thesis.

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<sup>86</sup> Harris (n 35) 91.

<sup>87</sup> Reportedly, such “diagnosis-shopping” for learning disabilities is common for the SAT tests in the US: Sandel (n 41) 55.

<sup>88</sup> See Chapter Nine.



In Chapter Seven, I advocated for the importance of connecting considerations about health with education, arguing that the two are inseparably linked in the context of children.<sup>89</sup> With regard to cognitive enhancement, this link between education and the healthy development of children must be addressed with particular urgency, because the resulting children will have enhanced cognitive needs. This point is often overlooked in the debate, which is remarkable given that preventative measures such as regular exercise and healthy diets are readily promoted for physical health, but nothing comparable is recommended for mental health, despite manifest long-term benefits.<sup>90</sup>

Accommodating people with disabilities to allow them to function better in society is not just done for the love of humanity. Hard economic factors also render the provision of better services for them a sensible policy decision and in the public interest. The same cost-saving argument applies to adequately educating the most cognitively able children, who will become healthier, more productive participants in society as a result.<sup>91</sup> Much like disability, super-ability can be costly if left untended. Special education for children with high learning potential can thus be seen as analogous to the compensation of disadvantages resulting from disability.<sup>92</sup> Precisely what measures this might entail should be investigated by educational specialists and developmental psychologists, though some recommendations are already available.<sup>93</sup>

### *Research funding*

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<sup>89</sup> See Chapter Seven, section 7.5.

<sup>90</sup> See Chapter Seven, sections 7.3 and 7.5.

<sup>91</sup> Solomon (n 21) 472.

<sup>92</sup> See Chapter Seven, section 7.5. This applies to both unenhanced and enhanced children with high learning potential.

<sup>93</sup> K Asbury and R Plomin, *G is for Genes: The Impact of Genetics on Education and Achievement* (John Wiley & Sons 2014) 149ff.

In the previous section, I suggested that disability is becoming increasingly difficult to distinguish from high cognitive ability, due to the changing cultural and political landscape. As far as the allocation of resources is concerned, this ‘fusion’ can be advantageous, because the research and interventions required for improving the well-being of all children with special needs is the same. This is a two-tiered argument: On the one hand, current research priorities mean that public monies for investigating causes of low intellectual ability are chronically difficult to come by. Many instances of low intellectual ability are related to so-called ‘orphan diseases’ with a low prevalence within a given population,<sup>94</sup> which means that it is also difficult to attract private funding for the research. On the other hand, the prospect of successful cognitive enhancement is beginning to attract substantial private investment in relevant research, mostly relating to the genomics of intelligence and other cognitive traits.<sup>95</sup> Such funding is headed by private companies, such as 23andMe and VeritasGenetics,<sup>96</sup> which offer direct-to-consumer gene sequencing and interpretation at a low cost. As an increasing number of people are being sequenced, a genetic database is being built up that can be used for research on all types of disease and non-disease traits.<sup>97</sup> This knowledge could potentially – and ideally – be used to improve the well-being of all children.

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<sup>94</sup> R Chadwick, ‘Gender And The Human Genome’ (2009) 7 *Mens Sana Monographs* 10. According to the US FDA, orphan diseases are conditions affecting fewer than 200,000 nationwide, and include illnesses such as cystic fibrosis and Lou Gehrig’s disease. ‘Orphan Products: Hope for People With Rare Diseases’ (*U.S. Food & Drug Administration*) <[www.fda.gov/Drugs/ResourcesForYou/Consumers/ucm143563.htm](http://www.fda.gov/Drugs/ResourcesForYou/Consumers/ucm143563.htm)> accessed 15 November 2016. In Europe, the definition requires a prevalence of fewer than one affected person out of 2,000: ‘Rare Diseases’ (*European Commission*) <[http://ec.europa.eu/health/rare\\_diseases/policy/index\\_en.htm](http://ec.europa.eu/health/rare_diseases/policy/index_en.htm)> accessed 20 November 2016.

<sup>95</sup> Greely (n 48) 140.

<sup>96</sup> For full details of the services offered, see ‘23andMe’ (*website*) <[www.23andme.com](http://www.23andme.com)> accessed 10 November 2016 and ‘VeritasGenetics’ (*website*) <[www.veritasgenetics.com](http://www.veritasgenetics.com)> accessed 10 November 2016.

<sup>97</sup> Greely (n 48) 140-41: Problems with using this kind of database might arise from the way in which the data is currently recorded, which relies partly on self-reporting and might not always be accurate.

## 10.5 Concluding remarks

The central theme of this thesis has been the welfare of children, and how this might be protected against harmful interference by third parties in light of a growing focus on cognitive capacities and a rapidly increasing interest in enhancement technologies. Emerging technologies, such as CRISPR-Cas9 genome editing, mean that genetic cognitive enhancement is slowly coming within reach.<sup>98</sup> I was dissatisfied with the fact that the debate appeared to stall at the point of discussing the moral permissibility of cognitive enhancement, which can only be the end point if one argues for complete impermissibility. Consequently, my thesis has been an attempt to develop a more nuanced view, providing an ethical evaluation of not just *if* but also *how* cognitive enhancement in children could be deemed morally permissible.

That latter point is the key learning from my research: even if we wanted to argue that cognitive enhancement is morally highly questionable, any attempt at prohibition is likely to be ineffective. For the reasons mentioned throughout this thesis, I do not think that a full prohibition can be successfully defended, because cognitive enhancement is not intrinsically *bad*, nor is it morally wrong in all circumstances. In addition, there are convincing practical reasons for not assuming it could be stopped, because cognitively enhanced children will become a reality and we are well advised

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<sup>98</sup> However, there are still plenty of hurdles to overcome. See J Kozubek, 'Can CRISPR-Cas9 Boost Intelligence?' (*Scientific American*, 2016) <<https://blogs.scientificamerican.com/guest-blog/can-crispr-cas9-boost-intelligence>> accessed 6 October 2016; D Cyranoski, 'CRISPR Gene-Editing Tested in a Person for the First Time' (*Nature News*, 15 November 2016) <[www.nature.com/news/crispr-gene-editing-tested-in-a-person-for-the-first-time-1.20988](http://www.nature.com/news/crispr-gene-editing-tested-in-a-person-for-the-first-time-1.20988)> accessed 16 November 2016. I have not addressed the latest technological developments in any detail, because such a discussion is not relevant for my argument. In addition, the effectiveness of these technologies is often still highly speculative.

to consider them now. Ultimately, cognitive enhancement in children will be a question of responsible choice, much like parenting in general, and such questions are preferably answered through education and appeals to reason, rather than by ‘allowing the heavy boots of the law to trample over private choices’.<sup>99</sup>

Paradoxically, the need for a ‘biocultural understanding of our moment’ might prove to be the ultimate argument for cognitively enhancing children, at least if this could safely and effectively improve the effectiveness of education:

In order to be a citizen now it is necessary to have certain kinds of knowledge to participate effectively in the public sphere and the political sphere. With controversies over the environment, the biosphere, stem-cell research, the role of gender and transgender, race, health care, abortion, pandemics, droughts and famine, disabilities, and so on, there is a necessity for complex understandings of the way that science impacts society.<sup>100</sup>

This is where my argument comes full circle, because as the empirical evidence outlined in Chapter Seven demonstrates, the associated benefits of greater cognitive ability almost always come with compensating losses. In the case of extremely intellectually able children, issues of asynchronous development often cause serious problems and impair healthy mental development.<sup>101</sup> Without considerable effort made to adjust the nurturing environment, which includes both the home and the educational setting, there is a significant risk of ‘disabling’ these highly talented young persons. In this sense, maybe Andrew Solomon’s suggestion is correct, and

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<sup>99</sup> Brazier (n 23) 391.

<sup>100</sup> LJ Davis, *The End of Normal: Identity in a Biocultural Era* (University of Michigan Press 2014) 134.

<sup>101</sup> Solomon (n 21) 426.

‘[p]erhaps genius, too, can be seen as an invasive illness.’<sup>102</sup>

## **Coda**

I want to end on a note of reflection, inspired by one of my favourite authors. In his tragic novel *Beneath the Wheel*, Hermann Hesse describes his prodigious main character Hans Giebenrath as follows:

A soul that is ruined in the bud will frequently return to the springtime of its beginning and its promise-filled childhood, as though it could discover new hopes there and retie the broken threads of life. The shoots grow rapidly and eagerly, but it is only a sham life that will never be a genuine tree.<sup>103</sup>

When Hesse wrote this in 1906, the notion of cognitive enhancement had not yet been born. Nevertheless, the idea that inadequately fostering of child’s potential can cause serious and life-long health problems was deeply rooted in Hesse’s work. Simply put, there are many ways to harm a child – we do not need cognitive enhancement to do so. Conversely, cognitive enhancement is not the panacea that some seem to suggest it is. It might turn out to be much less spectacular in its effect than hoped, which is why we should not neglect alternative avenues to solving our social problems.

This thesis is a plea to think about the treatment of children, especially those who do not fit easily into the “mould of normalcy”, bearing in mind that the context and the

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<sup>102</sup> Ibid 37.

<sup>103</sup> H Hesse, *Beneath the Wheel: A Novel* (Michael Roloff tr, first published 1906, Reprint edn, Farrar, Straus and Giroux 2013) 132.

concept of normalcy can and do change with technological progress and cultural developments. This presents an opportunity to improve the situation of exceptional children and to get it right for future cognitively enhanced children, but presupposes a willingness to contest many common intuitions about cognitive ability, giftedness, normalcy and disability. With this thesis, I hope to have contributed to this process.

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# **APPENDIX**

## APPENDIX

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### Published papers

1. Krutzinna J, 'Can a Welfarist Approach be Used to Justify a Moral Duty to Cognitively Enhance Children?' (2016) 30 *Bioethics* 528
2. Krutzinna J, 'Cognitively Enhanced Children: the Case for Special Needs and Special Regulatory Attention' (2016) 8 *Law, Innovation and Technology* 177





# CAN A WELFARIST APPROACH BE USED TO JUSTIFY A MORAL DUTY TO COGNITIVELY ENHANCE CHILDREN?

JENNY KRUTZINNA

## Keywords

*cognitive enhancement, welfarism, wellbeing, cognitive abilities, intelligence*

## ABSTRACT

*The desire to self-improve is probably as old as humanity: most of us want to be smarter, more athletic, more beautiful, or more talented. However, in the light of an ever increasing array of possibilities to enhance our capacities, clarity about the purpose and goal of such efforts becomes crucial. This is especially true when decisions are made for children, who are exposed to their parents' plans and desires for them under a notion of increasing wellbeing. In recent years, cognitive enhancement has become a popular candidate for the promotion of wellbeing; welfarists even impose a moral duty on parents to cognitively enhance their children for the sake of their wellbeing. In this article, I aim to show that welfarists are mistaken in inferring such a moral obligation from the potential benefit of cognitive enhancement. In support of this, I offer three arguments: (a) the vagueness of wellbeing as a theoretical concept means it becomes impossible to apply in practice; (b) the link between cognition and wellbeing is far from unequivocal; and (c) quantification issues with regard to cognition make a duty impossible to discharge. In conclusion, I reject the welfarist approach as a justification for a parental moral obligation to cognitively enhance children.*

## 1. BACKGROUND

Striving to improve one's life is probably one of the rare goals most of us would agree on. When reflecting about childhood and upbringing, parents express concern with their children's wellbeing. This is shared by many bioethicists, who consider increasing wellbeing a fundamental moral goal. In this article, I will examine the view of welfarists, who claim that parents have a moral obligation to cognitively enhance their children in order to promote their wellbeing.<sup>1</sup> I will reject the welfarist account as justification for such a parental duty to cognitively enhance children, because its purely normative nature cannot be reconciled with the need for practical applicability in the context of raising children in practice. A clear understanding of the components of wellbeing is required to make important decisions affecting children's lives, including those relating to possible

enhancements. If a grown person, competent and autonomous, wishes to enhance himself, then other things being equal, it can be deemed morally permissible.<sup>2</sup> Other things not being equal, for instance where decisions are made for future children, difficulties arise and a valid moral justification is needed. I do not dispute that the wellbeing of children matters morally in parental decision-making; however, to include cognitive enhancement within that duty on the basis of a welfare argument seems unfairly burdensome on parents, given the lack of specificity with regard to wellbeing in general, and the effects of cognition on wellbeing in particular. In practice, this uncertainty would make it impossible for parents to know how to discharge that duty. Yet this is precisely the type of duty some welfarists try to impose on parents, as I will demonstrate below.

One prominent attempt at providing such a justification is the welfarist approach to enhancement, which defines

<sup>1</sup> J. Savulescu, et al. 2011. *Enhancing Human Capacities*. Malden, MA: Wiley-Blackwell.

<sup>2</sup> R. Chadwick. 2008. *Therapy, Enhancement and Improvement*. In *Medical Enhancement and Posthumanity*. Springer: 25–37, 37.

enhancement as ‘any change in the biology or psychology of a person which increases the chances of leading a good life in the relevant set of circumstances.’<sup>3</sup> Cognitive enhancement is singled out as being of particular importance:

Cognition plays a central role in our wellbeing as members of the species *homo sapiens*. In addition, it may provide significant social and economic benefits. These are all strong reasons to support cognitive enhancement. In many cases, cognitive enhancement will have to be done early in life to have maximum benefit. Parents will have to make choices for their children. Thus, as technology advances, parents will have a duty to enhance their children.<sup>4</sup>

It thus appears that the welfarist account of cognitive enhancement can be summarized as follows:

**P1: Wellbeing is the paramount consideration in moral decision-making.**

**P2: Cognition may positively affect wellbeing.**

**P3: Parents have a moral obligation to promote their children’s wellbeing.**

Leading to:

**C: Parents have a moral obligation to cognitively enhance their children.**

In the following article, I will consider premises P1-P3 in turn, before answering the question of whether parents are under a moral obligation to cognitively enhance their children (C) on the basis of a welfare argument.

The first part will be a review of P1, which is an expression of welfarism in general. My main criticism will be its lack of practical applicability.

Following from there, P2 will be analysed and important conceptual and empirical shortcomings will be highlighted. In the third part, regarding P3, the question of maximization will be addressed. I will argue that even a weaker version of an improvement obligation, one short of maximization, fails to convince due to issues of quantification. This analysis will cumulatively lead to the conclusion that C cannot be successfully defended and no such parental duty to cognitively enhance children can be justified.

## 2. P1: WELLBEING IS THE PARAMOUNT CONSIDERATION IN MORAL DECISION-MAKING (WELFARISM)

Wellbeing has a long history in moral philosophy and today features in any credible moral theory.<sup>5</sup> Raz’s

<sup>3</sup> Savulescu, et al., *op cit.* note 1, p. 7.

<sup>4</sup> *Ibid.*: 16.

<sup>5</sup> R. Crisp. 2013. Well-Being. In *The Stanford Encyclopedia of Philosophy*. E.N. Zalta, ed. Summer 2013 edn., <http://plato.stanford.edu/archives/sum2013/entries/well-being/>[Accessed 10 December 2014]

‘humanistic principle’, for instance, states that ‘the explanation and justification of the goodness or badness of anything derives ultimately from its contribution, actual or possible, to human life and its quality.’<sup>6</sup> Welfarism is the most extreme view, according to which the justificatory force of any moral reason ultimately rests on wellbeing,<sup>7</sup> a concept which is most commonly used to describe what is noninstrumentally good for a person.<sup>8</sup>

The intuitive appeal of such an approach is obvious: even in the absence of an unequivocal definition of a ‘good life’, we can readily identify and agree on at least some components of such a life. Friendship, love, knowledge, and health, are common and largely uncontroversial contenders, which can easily be subsumed under the umbrella of wellbeing.

Intuitions, however, have no probative force – they are merely a reason to start looking for a good argument.<sup>9</sup> For a moral theory to stand up to scrutiny, more than plausibility is required or it cannot inform our ethical decision-making process, which we need it to if we want to move beyond theory to practical application. To derive rules about how we ought to live our lives – moral rules – we have to be clear and open about the goals we are pursuing.

As Richard Kraut points out:

Since good rightly occupies a central place in our deliberations, the most urgent practical task of philosophy is to discover what the content of goodness is – to discover, in other words, what concrete goal (whether it be knowledge, or virtue, or pleasure) should be placed at the center.<sup>10</sup>

Yet this is precisely what proponents of welfarism fail to do in the context of enhancement. Although the ‘interpretation of welfarism is itself a matter of dispute’,<sup>11</sup> a contemporary expression in this context states:

The welfarist account is inherently normative. It ties enhancement to the value of wellbeing. [...] It singles out wellbeing as one dimension of value that is constitutive of genuine human enhancement. But it leaves open substantive and contentious questions about the nature of wellbeing, and important empirical questions about the impact of some treatment on wellbeing.<sup>12</sup>

All we are told is that the ultimate *good* or goal to be pursued is wellbeing, but there is no indication as to what this entails. If one believes that the purpose of ethics is

<sup>6</sup> J. Raz. 1986. *The Morality of Freedom*: Oxford University Press: 194.

<sup>7</sup> Crisp., *op. cit.* note 5.

<sup>8</sup> *Ibid.*

<sup>9</sup> J. Griffin. 1986. *Well-being: Its Meaning, Measurement, and Moral Importance*. Clarendon. Oxford: 2.

<sup>10</sup> R. Kraut. 2007. *What is Good and Why: The Ethics of Well-being*. Paperback edn. Cambridge, MA; London: Harvard University Press: 16.

<sup>11</sup> R. Crisp, *op. cit.* note 5.

<sup>12</sup> Savulescu, et al., *op cit.* note 1, p. 7.

practically to inform our moral decision-making process and not merely to develop and perfect moral theory, as I do,<sup>13</sup> practical applicability of the welfarist approach has to be established. If the claim that parents have a moral obligation to cognitively enhance children for the sake of their wellbeing is to be successfully defended, it must be demonstrated how the theory can be applied in practice.<sup>14</sup> A theory which leads to moral duties which cannot be discharged is void of all practical value.

In times where scientific ambition is rapidly increasing and biotechnological progress is fast, it is crucial to focus on practical issues and on finding solutions to real problems, which requires any ethical approach to provide substantive content within any theoretical framework. Given this importance of practical applicability in current bioethics, it appears that the professed strength of the welfarist approach to cognitive enhancement, namely its normativity, actually constitutes a serious weakness in practice. The welfarist approach, being normative in nature, does not offer any guidance on how to identify any of the constitutive elements of wellbeing. The idea of cognition bearing directly on one's wellbeing is no more substantiated than the assumption that it is somehow good to be tall. It can plausibly be argued that tallness is a good thing to have, in that it conveys certain advantages, such as being able to reach things high up or emanating authority. However, the converse could be equally convincingly argued, namely that – at least beyond a certain level – being tall has great disadvantages, such as not being able to fit comfortably into airplane seats or that some people might feel intimidated by a tall stature. This does not affect the potential disbenefit of being short, but rather shows that in some cases quantity matters. A judgment of the goodness or badness of tallness is necessarily contextual and depends both on the individual and the circumstances.<sup>15</sup> Therefore, in order to make a successful claim that cognition positively impacts on wellbeing, flesh needs to be put on the bones and we need to investigate what wellbeing really consists of.

## 2.1 Theories of Wellbeing

Usually three types of theories of wellbeing are distinguished, namely hedonism, desire theories, and objective list theories. Whilst hedonism in its simplest form is concerned with achieving the greatest balance of pleasure over pain, the other two theories are based on the view that certain things are objectively good for humans

<sup>13</sup> I agree with Aristotle that ethics is a practical rather than theoretical study, one aimed at becoming good and doing good rather than knowing for its own sake. Aristotle. 2009. *The Nicomachean Ethics*. Oxford; New York: Oxford University Press. See also R. Chadwick. What is 'Applied' in Applied Ethics. *Journal of Applied Ethics* 2009; 1: 1–7.

<sup>14</sup> Chadwick notes that applied ethics requires collaboration between different disciplines to avoid blindness to relevant considerations outside of the ethical framework. *Ibid.*

<sup>15</sup> And on quantity, which I will address below.

(objective list theory) or that fulfilment of desires is what matters for wellbeing (desire theory).<sup>16</sup> All theories exist in different versions, and two examples are worth mentioning in the present context, because they shed light on the shortcomings of the welfarist account.

Kraut advocates a theory called 'developmentalism', which is an advanced version of Derek Parfit's objective list approach.<sup>17</sup> At the heart of it lies the idea of *flourishing*, which for human beings is defined as 'possessing, developing, and enjoying the exercise of cognitive, affective, sensory, and social powers (no less than physical powers).'<sup>18</sup>

An alternative view is offered by James Griffin, who acknowledges that a simple desire account is unsatisfactory because actual desires can be faulty and instead proposes an informed desire account.<sup>19</sup> 'Wellbeing, according to him, is dependent upon an individual's own desires, as well as based on certain values, which are not based on one person's desires but instead apply to all individuals.'<sup>20</sup> The approach is thus both objective and subjective, by being flexible enough to accommodate variations between individuals.

What the brief discussion of these approaches demonstrates is that although commonly used in everyday speech, the meaning of 'wellbeing' is far from unambiguous and as a concept in moral philosophy needs to contain at least some substantive content in order for it to be of any practical use.

## 3. P2: COGNITION MAY POSITIVELY AFFECT WELLBEING

### 3.1 Cognition and Wellbeing

Large-scale research is currently underway to identify the genetic bases of various cognitive functions, particularly of intelligence.<sup>21</sup> The motivation for this pursuit lies in the firm belief that cognition can be modified in a way which will enable us to live a better and more successful life. A causal link is readily assumed between cognition and wellbeing, yet there is no more than anecdotal evidence to back up such a claim.<sup>22</sup> Correlation does not mean causality.

Claiming that cognition has an impact on wellbeing, Savulescu, Sandberg, and Kahane state that:

<sup>16</sup> Crisp. *op. cit.* note 5.

<sup>17</sup> Kraut. *op. cit.* note 10, p.141.

<sup>18</sup> *Ibid.*: 90.

<sup>19</sup> Griffin. *op. cit.* note 9, p.12.

<sup>20</sup> *Ibid.*: 32–33. The priority and extent to which a particular value applies to an individual can, however, vary.

<sup>21</sup> G. Naik. 2013. A Genetic Code for Genius? *Wall Street Journal* 15 February (Retrieved 24 August 2014, from <http://online.wsj.com/news/articles/SB10001424127887324162304578303992108696034>).

<sup>22</sup> On the complexity of causality and correlations in this context see for instance R. Veenhoven & Y. Choi. Does Intelligence boost Happiness? Smartness of all pays more than being smarter than others. *International Journal of Happiness and Development* 2012; 1: 5–27.

Cognitive capacities are the required for deployment of any kind of instrumental rationality – the capacity to reliably identify means to one's ends and projects. Better cognition means better access to information about one's surroundings and about one's own biology and psychology, as well as better abilities to use this information in rational planning. Persons need to exercise instrumental rationality in order to obtain pleasure and avoid pain, in order to fulfil their desires, and in order to realize objective goods. So cognitive enhancement should promote wellbeing on all major theories of wellbeing.<sup>23</sup>

In the same context, they draw a distinction between *functional* enhancement and *human* enhancement, asserting that in ethical debate it is the latter that matters most, not the enhancement of 'some capacity or power (e.g. vision, intelligence, health)'.<sup>24</sup> But in arguing that cognition positively affects wellbeing, this distinction appears confusing given that functional enhancement is then simply an intermediate step towards human enhancement, but that sometimes a human enhancement may not consist in the improvement of a function. The example given is intelligence, where they perceive of situations in which it might be appropriate to diminish IQ for the sake of increased wellbeing.<sup>25</sup>

While super-intelligence might seem to be an enviable trait or disposition, being "too smart for one's own good" is not always a mere teasing admonition: for many intellectually gifted individuals, very high intelligence can come at a direct cost to their overall wellbeing.<sup>26</sup>

This seems to be a contradiction, because it suggests that cognition might not be positively linked to wellbeing after all, but that there simply is a relationship between the two, which may or may not be positive. It might be too little or too much. We simply do not know and Earp et al. readily acknowledge that which one it is depends on circumstances: 'Identifying diminishment as a possible form of human enhancement, therefore, invites us to ask whether we may have *too much* X for the best life, based on the relevant local circumstances and other facets of modern living.'<sup>27</sup> But we cannot realistically know these circumstances and facets in advance of children having reached a certain age, at which stage an enhancing intervention may no longer be possible.<sup>28</sup>

<sup>23</sup> Savulescu, et al. *op. cit.* note 1, p. 10.

<sup>24</sup> *Ibid.*: 3.

<sup>25</sup> B.D. Earp, et al. When is diminishment a form of enhancement? Rethinking the enhancement debate in biomedical ethics. *Frontiers in Systems Neuroscience* 2014: 8.

<sup>26</sup> *Ibid.*: 4.

<sup>27</sup> *Ibid.*

<sup>28</sup> See Savulescu et al., *op. cit.* note 4.

I acknowledge that intelligence is seen by some as an 'elusive concept, incorporating many different aspects'<sup>29</sup> and is not to be equated with cognitive abilities. However, whilst intelligence as a conclusive factor may be questioned, there is widespread agreement amongst experts in the field, that general cognitive capacity, which 'facilitates reasoning, problem-solving, decision making, and other higher order thinking skills'<sup>30</sup>, as expressed by the factor *g* is measurable and highly relevant to a person's life chances – more so than any other trait.<sup>31</sup> It regulates the rate of learning and greatly affects the rate of return in knowledge to instruction and experience.<sup>32</sup> This seems to be in line with what is meant by instrumental rationality, which according to the welfarist approach affects one's wellbeing. If this is true, and if it also true that a reduction in IQ can sometimes be an enhancement, we are left wondering how to determine which level of cognitive ability is best for our wellbeing.

Similarly, it could be argued that being less emotionally receptive or empathetic is advantageous for one's wellbeing in that one becomes less vulnerable. The welfarist approach could support the claim that we should diminish our emotional capacity in order to achieve a human enhancement. Maybe in extreme cases this would indeed be supported by welfarists, but where we draw the line is important if we are to make decisions for our children – we must find a way of determining how much or how little of something is acceptable when we make important decisions with far-reaching consequences for others at a time where only limited contextual information is available to us (as we do not know much about our children's future). Kahane and Savulescu suggest we rely on our everyday understanding, because 'there is considerable consensus about the particular traits or states that make life better or worse.'<sup>33</sup> They reiterate that it is one of the strengths of the welfarist approach that 'it does not rely on a controversial conception of wellbeing'<sup>34</sup> and instead allows for various interpretations of what is good. Rough answers to questions about wellbeing, so they claim, are sufficient.<sup>35</sup> This could then support a parent's decision to reduce empathy in a child to avoid vulnerability<sup>36</sup> – in light of the

<sup>29</sup> S. Chan & J. Harris. Cognitive Regeneration or Enhancement: the Ethical Issues. *Regenerative medicine* 2006; 1: 361–366: 362.

<sup>30</sup> L. Gottfredson. Why *g* matters: The complexity of everyday life. *Intelligence* 1997; 24: 79–132: 81.

<sup>31</sup> *Ibid.*

<sup>32</sup> L. Gottfredson, 1998. *The general intelligence factor*: Scientific American, Incorporated. 24–29: 26. Gottfredson points out that *g* cannot substitute for either instruction or experience.

<sup>33</sup> G. Kahane & J. Savulescu. The welfarist account of disability. *Disability and Disadvantage* 2009: 14–53: 48.

<sup>34</sup> *Ibid.*

<sup>35</sup> *Ibid.*

<sup>36</sup> Neuroscientist Simon Baron-Cohen has suggested that even too much empathy may have some maladaptive consequences in some cases. See Earp, et al., *op. cit.* note 24 p. 412.

current state of the world when watching the news, this seems increasingly plausible; it is also a pragmatic approach, because it could be far easier to reduce one's susceptibility to badness than to make the world a better place overall.

### 3.2 Cognitive Enhancement and Wellbeing

So it appears that the role of cognitive abilities in wellbeing is far from clear. Furthermore, even if a positive link between cognitive capacities and wellbeing is accepted, it does not follow that a change in cognitive powers by way of enhancement would necessarily bring a benefit. This is disputed by Chan and Harris, who are convinced that 'for a given individual, it is hard to see how a simple increase in intelligence could be other than beneficial: intelligence has been shown to correlate with socioeconomic success, health and longevity, all of which are normative goods.'<sup>37</sup> The first point to note is that it is in the very nature of statistics that you cannot derive truths about an individual from facts about a group: if it is true that, in general and for the majority of people, an increase in intelligence will be beneficial, it is not the case that this will hold true for *any given individual*. In particular, the value of increased intelligence (at least beyond a pathologically low level) greatly depends on cultural context and the political system one lives in.<sup>38</sup> Furthermore, there is an issue with causality here. Claims in support of cognitive enhancement based on a link between factors such as life expectancy and health and intelligence are common. However, the initial plausibility can be called into question by considering the available data in more depth: for instance, nutrition has long been known to influence the development of intelligence,<sup>39</sup> which means that better health and greater life expectancy might well be caused by better nutrition. Intelligence could then be said to be a co-factor affected by nutrition, rather than intelligence being positively correlated to health.

### 3.3 Potentiality

A further important point is the question of potentiality. The welfarist account of cognitive enhancement is quite open about the fact that we are only talking about increasing chances of leading a good life – there are no certainties. By stating that '[i]t is important to recognize that something expected to increase the chances of lead-

ing a good life may, in a probabilistic world, not result in a good life'<sup>40</sup>, we are being prepared for disappointment. Cognitive enhancement simply is not enough, unless wellbeing is reduced to socioeconomic success. As Gottfredson explains:

[h]igh-IQ individuals may lack the resolve, character or good fortune to capitalize on their intellectual capabilities, but socioeconomic success in the postindustrial information age is theirs to lose.<sup>41</sup>

Therefore, cognitive enhancement does not end at the point where, for instance, genetic modifications are made to raise the level of cognitive ability of a child. If we want to increase the probability of the enhanced child experiencing greater wellbeing, we must understand the intervention as only a first step: in Kraut's terminology, this means that we must also ensure the development and exercise of the powers given, not just their presence. This might turn a mere possibility of a positive outcome of enhancement into at least a probability.

To summarize, there appear to be both conceptual and empirical shortcomings in the welfarist account: empirically, the link between cognition and wellbeing is not definitively established, particularly the direction of the possible correlation is unclear and seems to vary beyond a threshold which is not specified and which is assumed to be circumstantial. Conceptually, the required minimum amount of subjectivity any practically applicable account of wellbeing needs is lacking, leaving the welfarist approach a theoretical concept, unsuitable for overcoming practical obstacles in deciding whether or not an enhancement can be deemed morally obligatory (or even permissible).

## 4. P3: PARENTS HAVE A MORAL OBLIGATION TO MAXIMIZE THEIR CHILDREN'S WELLBEING

Granting that parents have certain moral (and legal) obligations with regard to their offspring, the question which remains is the precise nature and extent of these duties. Basic duties, such as the provision of food, aside – is there a parental duty to maximize one's children's wellbeing? If so, how could the duty be discharged? To increase and to maximize wellbeing, we need to be able to measure it.<sup>42</sup> However, the above discussion has shown that criteria for quantification are distinctly lacking and the example of cognition also shows that whether an increase in ability has a positive or negative

<sup>37</sup> Chan & Harris. *op cit.* note 28.

<sup>38</sup> R.J. Sternberg. Intelligence. *Wiley Interdisciplinary Reviews: Cognitive Science* 2012; 3: 501–511: 507.

<sup>39</sup> R. Colom, et al. The generational intelligence gains are caused by decreasing variance in the lower half of the distribution: Supporting evidence for the nutrition hypothesis. *Intelligence* 2005; 33: 83–91; M. Sigman & S.E. Whaley. 1998. The Role of Nutrition in the Development of Intelligence. In *The Rising Curve: Long-term Gains in IQ and Related Measures*. Washington, DC, US: American Psychological Association: 155–182.

<sup>40</sup> Savulescu, et al., *op cit.* note 1, p. 8–9.

<sup>41</sup> Gottfredson. *op cit.* note 31, p.29.

<sup>42</sup> Griffin, *op cit.* note 8, p.102: 'How are we going to measure wellbeing in the messy everyday situations in which we have to apply the policy of maximising?'

impact on wellbeing will to some extent depend on the individual circumstances. If parents cannot foresee the effect of their actions on their children's wellbeing, it appears that the discharge of a moral duty to maximize wellbeing becomes an impossibility.

#### 4.1 Quantification

If parents are to discharge their duty, they must be offered more guidance than 'rough answers' to what might be best for their children's wellbeing, in circumstances completely unknown at the time of having to make the decision to enhance. How are we to know when enhancement is sufficient and is there a minimum threshold, an optimal level or is it an infinite good?

These questions are difficult to answer but at least with regard to the bottom end of the scale, we have some indication. Linda Gottfredson has identified an IQ of 75 as possibly 'the most important threshold in modern life',<sup>43</sup> below which an individual 'will have a hard time functioning independently without considerable social support.'<sup>44</sup> This seems a reasonable threshold to adopt, given the importance attached to autonomy in our society. So a parental moral obligation to ensure the minimum threshold of cognition is reached could likely be established, at least where this can be done safely.

Beyond this, however, it becomes increasingly difficult to determine a range or level of cognition conducive to maximizing wellbeing. The problem is the absence of a clear and substantive definition of wellbeing. Whilst it seems uncontroversial that the ability to be autonomous features in wellbeing, and this might well be one of the 'rough answers' previously mentioned, there is little more to guide us on the required quantities of cognition and other potential components of wellbeing. Griffin, referring to basic needs, points out that these tend to become less important the more they are already met and at some level of satisfaction cease to be important at all.<sup>45</sup> This might well be true for cognitive capacities, so that there is no maximization argument.

Kraut with his notion of flourishing only refers to the 'healthy development and exercise of human mind', but as the long-lasting treatment/enhancement debate shows, *healthy* is not a helpful criterion in moral philosophy. Flourishing, it seems, does not necessarily require the enhancement of any particular capacity or power, as long as the capacity is present and can be developed and enjoyed: '[T]here is no reason to increase someone's powers, unless doing so removes a deficiency; and something can be identified as a deficiency only by means of a theory of wellbeing.'<sup>46</sup> This seems to support the mini-

imum level claim made above, and along the lines of Griffin's argument, that there is a point where enough cognition is present. Where this threshold is, we still do not know.

#### 4.2 Public argument

On the large scale, another argument for at least some quantification guidance is that uninformed enhancement decisions are likely to lead to an unnecessary waste of resources. In terms of economic efficiency, any benefit gained (any increase in wellbeing) must be weighed against the cost incurred. If public resources are to be used for cognitive enhancement, budget prioritization needs to follow a line of cost-effectiveness unless we encounter utopian circumstances where all interventions can be paid for. Realistically though, decisions will need to be made on which types of enhancement are worth their cost. This is not just a moral argument but also a question of public policy, but if there is to be any practical value to be derived from welfarist theory, an answer to how this will be handled needs to be found. Furthermore, the question of whose responsibility it is to enable the cognitive enhancement of children – through funding and legislation – is also an important moral question, especially since many of the benefits associated with such enhancements seem to be not on an individual but on a community level, in which the state has a vested interest.<sup>47</sup> Morality requires that public monies be spent effectively and not wasted on futile (and possibly risky) interventions. With regard to cognition, it is well-known that a number of factors, such as better nutrition, less environmental pollution, and reduced exposure to toxins, improve child development, including cognition,<sup>48</sup> and most likely at a much lower cost than any conceivable cognitive enhancement intervention in the near future.

But even if enhancements are to be paid for privately, a potential waste of resources is still relevant, because parents will have to go by their own interpretation of which interventions will lead to increased wellbeing. They will be greatly susceptible to clever marketing by service or product providers and might fall victim to the belief that more is always better. This is mistaken, as the example of IQ mentioned earlier shows. Misguided enhancement might then unintentionally lead to a worsening rather than an improvement of an individual's life.

#### 4.3 Alternatives

Regardless of costs, there is another danger, namely that the focus on cognitive enhancement will distract from other ways of improving wellbeing. Levy has recently

<sup>43</sup> Gottfredson, *op. cit.* note 29, p.29.

<sup>44</sup> *Ibid.*

<sup>45</sup> Griffin, *op. cit.* note 9, p.51.

<sup>46</sup> Kraut, *op. cit.* note 10, p.178.

<sup>47</sup> A. Sandberg & J. Savulescu. 2011. The Social and Economic Impacts of Cognitive Enhancement. In *Enhancing Human Capacities*, *op. cit.* note 1, 92–112; Chan & Harris, *op. cit.* note 28.

<sup>48</sup> Sandberg & Savulescu. *Ibid.*

argued that when faced with a detrimental mismatch between our capacities and our context, it is often better to change our environmental conditions than it is to re-tool our biology, all things considered.<sup>49</sup> Kraut argues along the same lines with his idea of flourishing, which requires an individual not only to have a certain capacity, but also the *opportunity to exercise* that power. Merely providing children with great cognitive ability and then leaving them to their own devices will not make them flourish, and will not improve their wellbeing.<sup>50</sup>

In summary, it seems that imposing a moral duty on parents to maximize their children's wellbeing cannot be justified. Whilst it is undisputed that parents owe certain duties to their children, some of which might exceed the fulfilment of the most basic of needs such as food and shelter, a positive duty involving the maximization of wellbeing would be impossible to discharge. Too little is known about wellbeing and how this is impacted to provide thorough guidance on how parents should act. In light of this, specific wellbeing decisions should be left to parents and parental autonomy should be respected.

The cumulative effect of the above discussion leads to the conclusion that there cannot be a moral obligation to cognitively enhance children based on wellbeing. But even if these arguments all fail and P1-P3 were to be accepted as valid premises, it still does not follow that C is correct. For a finding of a moral duty to cognitively enhance children, the mere possibility of a positive impact on the wellbeing of a child will have to be carefully weighed against other considerations, such as possible side-effects and alternative ways of promoting wellbeing. Again, this is partly an empirical question.

## 5. C: PARENTS HAVE A MORAL OBLIGATION TO COGNITIVELY ENHANCE THEIR CHILDREN

It is undisputed that 'what does no good should not be done (unless every alternative is worse).'<sup>51</sup> So for the moment, we will assume that there is at least some good to be derived from cognitive enhancement, even if it consists merely in a possibility. Still, this is not enough to justify a moral obligation.<sup>52</sup>

<sup>49</sup> N. Levy. Ecological Engineering: Reshaping Our Environments to Achieve Our Goals. *Philosophy & Technology* 2012; 25: 589–604.

<sup>50</sup> The importance of developing one's potential is also expressed in the UN Convention on the Rights of the Child (available at <http://www.ohchr.org/en/professionalinterest/pages/crc.aspx>). See Articles 27 (standard of living adequate for the child's physical, mental, spiritual, moral and social development) and 29 (education to be directed to the development of the child's personality, talents and mental and physical abilities to their fullest potential).

<sup>51</sup> Kraut, *op. cit.* note 10, p. 231.

<sup>52</sup> Ibid: 212: 'The mere fact that an act would do some good is never, by itself, enough to support a conclusion about what should be done.'

On a conceptual level, it seems overzealous to infer a duty to cognitively enhance one's children without clear evidence that this will bring about a benefit.<sup>53</sup> A finding of moral permissibility might be made on the potentiality of an improvement in wellbeing, but to imply a duty is to disregard the very essence of the welfarist approach, namely the openness to varying substantive notions of wellbeing. Parents might well choose to answer the substantive questions about wellbeing in a different manner, for instance one which places cognition below athletic ability in the hierarchy of components of wellbeing. Presumably, on all accounts of wellbeing, there is more to it than finding employment and being healthy, so a variation in priorities is highly probable.

On a practical level, the question arises as to how it would ever be possible to dispose of such a duty, unless an optimal level or acceptable range of cognitive ability was to be specified.

In addition, given that according to the welfarist account, diminishment of cognitive ability can sometimes constitute an enhancement, it appears virtually impossible for parents to make a decision prior to their children having reached a certain age when there is sufficient contextual information available to know whether a particular intervention, such as increase in IQ, will be a human enhancement or an undesirable functional enhancement reducing wellbeing. '[T]o draw a practical conclusion, one needs more than a general conception of what is good; one must also know something about who the potential beneficiaries of one's actions are, and about how one is situated in relation to them.'<sup>54</sup> This might only be possible when it has become too late for cognitive enhancement to have the desired effect.

The identification of advantageous and disadvantageous predispositions without the relevant contextual information is likely to be error prone. Habermas maintains that as a result, even in the case of physical disability there is no justification for enhancement: 'Not even the highly general good of bodily health maintains one and the same value within the contexts of different life histories. Parents can't even know whether a mild physical handicap may not prove in the end to be an advantage for their child.'<sup>55</sup> Due to this uncertainty, it might then be best to err on the safe side and prevent enhancement of children, which is the idea raised by Joel Feinberg that children have a 'right to an open future', which means that parents are under a duty to keep their children's future options open until they are capable of making their own decisions.<sup>56</sup>

<sup>53</sup> Coincidentally, it could be argued if that much emphasis is placed on cognition as a factor impacting on well-being, this constitutes an argument in favour of sex selection of embryos, given the evidence that males on average have greater *g*.

<sup>54</sup> Kraut, *op. cit.* note 10, p.213.

<sup>55</sup> J. Habermas. 2003. *The Future of Human Nature*: Polity: 86.

<sup>56</sup> W. Aiken & H. LaFollette. 1980. *Whose Child?: Children's Rights, Parental Authority, and State Power*. Totowa, N.J.: Littlefield.

Whilst this might seem overly cautious and practically unrealistic given the current technological developments, we might nevertheless want to stop at moral permissibility and not infer a duty which cannot be justified. As Atul Gawande states in the Reith Lectures 2014, there is a general phenomenon ‘that once we have high-tech capacity, we have trouble using it wisely.’<sup>57</sup>

## 6. CONCLUSION

In this article, I have argued that the welfarist account of enhancement fails to justify a parental duty to cognitively enhance children, on a number of grounds. Adopting a practical approach, which requires any moral argument to go beyond being merely theoretical and to also be applicable in practice, I have shown that the inherent normativity of the welfarist account prevents this applicability. Without a substantive understanding of what wellbeing is, we cannot practically work towards increased wellbeing – the goal of increased wellbeing is so vague that it can accommodate almost anything. If we leave open the question about the components to wellbeing, it seems that we are moving towards an exclusively subjective interpretation of wellbeing, which is not what welfarists have in mind: ‘subjective wellbeing is the whole of wellbeing only on hedonistic theories, although it is a significant component of wellbeing on all plausible views.’<sup>58</sup>

Being a plausible and appealing theory cannot save the welfarists’ claim that there is a moral obligation to cognitively enhance children, because unless more is known about the content and extent of it, it will simply be impossible for parents to discharge such a duty.

I have shown that there are significant uncertainties inherent in the welfarist account of enhancement, namely that it relies on a possible but unestablished causal link between cognition and wellbeing. Although there is evidence of a link between economic success and cognition, no such evidence is forthcoming with regard to other components including subjective wellbeing. Unless one believes that the latter is less important, and that what truly matters is the effect on one’s socioeconomic status, the account is not satisfying due to its incompleteness.<sup>59</sup>

In the absence of proper quantification of the possible benefit of cognitive enhancement, we also run a risk of

wasting our resources. There is evidence that monies might be spent more wisely on improving nutrition, education, and social and employment opportunities for those with a suboptimal level of cognitive ability. All of these are already available to us now and there is no reason to hold off for further technological advances to become available and for them to lead to a moral duty to act. If there are things which can be done now to improve lives, they should be done. Harris suggests making children a little bit smarter, so that they can benefit more from education and as a result lead better lives.<sup>60</sup> But is cognitive enhancement really the best approach for this or should we work on improving the education we provide? Amongst those not currently benefiting from education as well as they could are the highly gifted, who wouldn’t be helped by cognitive enhancement, because they already have the necessary cognitive capacity. It also raises the question of what the ultimate goal is: education is only a means to an end. Unfortunately, Harris provides no clarification on where this should lead to but presumably also considers some notion of wellbeing (incorporating economic situation and health) as the ultimate goal.

Empirical evidence might go some way towards establishing a link between cognition and wellbeing, but this does not necessarily suffice to justify a moral duty for parents to cognitively enhance their children. It might make such intervention morally permissible, but in order for such a duty to arise the benefit must be clear, significant and probable.

Wellbeing remains a fuzzy concept. It seems as if some philosophers are perfectly content with the establishment of a normative notion of wellbeing and do not worry about its practical applicability. The danger, as I see it, lies in the oversight of individual welfare, expressed in subjective terms. It seems too easy to justify cognitive enhancement by appealing to wellbeing when really what is being focussed on is societal productivity.<sup>61</sup> The individual’s life preferences and satisfaction come second.<sup>62</sup> In policy-making, this might be acceptable; in ethical discourse it needs to be justified. This, I believe, has not been done yet by welfarists.

**Jenny Krutzinna** is a Doctoral Candidate in Bioethics and Medical Jurisprudence at the Centre for Social Ethics and Policy at the University of Manchester.

<sup>57</sup> A. Gawande. 2014. The Idea of Well-Being. In *The Reith Lectures 2014: The Future of Medicine*. S. Lawley, ed., Transcript p.5.

<sup>58</sup> Savulescu, et al., *op. cit.* note 1, p.11.

<sup>59</sup> Griffin, *op. cit.* note 9, p.2–4: Any good argument in normative ethics has to pass the tests of completeness and correctness.

<sup>60</sup> J. Harris. 2010. *Enhancing Evolution: The Ethical Case for Making Better People*. Oxford: Princeton University Press.

<sup>61</sup> What is morally permissible and desirable partly depends on context and might vary from one cultural setting to another, but as long as we don’t live in a communitarian society, it is morally unacceptable to put some abstract concept of society’s well-being before the individual.

<sup>62</sup> According to Buchanan, a strictly consequentialist approach would be to view even a minimal improvement to society overall as a justification to such enhancements, even at the cost of making a small number of individuals less well off. See A.E. Buchanan. 2001. *From Chance to Choice: Genetics and Justice*. Cambridge: Cambridge University Press.



# Cognitively enhanced children: the case for special needs and special regulatory attention

Jenny I. Krutzinna 

Centre for Social Ethics and Policy, School of Law, University of Manchester, Manchester, UK

## ABSTRACT

Despite the welfare of the child being afforded special legal and moral importance, it appears that the law is currently not objective in its application to children. There is an undeniable link between healthy child development and education, with the latter greatly impacting on mental health and general well-being. Drawing on the example of the differential treatment of gifted children in an educational context, I argue that the legal framework with regard to learning disabilities and cognitive impairments operates contrary to the proclaimed goal of protecting and promoting the welfare of the child. This, I argue, constitutes unjustified discrimination, especially since there is a case to be made that highly cognitively able children could be considered disabled under a social model of disability. Whilst the group of affected children is small at present, developments in cognitive enhancement technologies mean that many more children might in the future be affected. Since the law currently fails gifted children, it will by analogy also likely fail cognitively enhanced children.

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## 1. Introduction

Parents' desire to have highly intelligent children remains fashionable, as television shows such as 'Child Genius'<sup>1</sup> and magazine articles about enrichment classes<sup>2</sup> suggest.<sup>3</sup> The discovery and understanding of the workings of human intelligence have been a matter of great interest for a long time,<sup>4</sup> and the

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**CONTACT** Jenny I. Krutzinna  jenny.krutzinna@postgrad.manchester.ac.uk  Centre for Social Ethics and Policy School of Law, The University of Manchester, Oxford Road, Manchester M13 9PL, UK

<sup>1</sup>'Child Genius' *Channel 4* (2013–2016) [www.channel4.com/programmes/child-genius](http://www.channel4.com/programmes/child-genius) (accessed 25 May 2016).

<sup>2</sup>'Power Up – Enrichment Special 01/2010' *Young Parents* (Singapore) 39 [www.youngparents.com.sg](http://www.youngparents.com.sg) (accessed 25 May 2016).

<sup>3</sup>In addition, there is a growing trend for parents to give stimulant drugs to their children to enhance school performance. Recently, this has controversially been suggested as a suitable tool for addressing social disadvantage: K Ray, 'Not Just "Study Drugs" For the Rich: Stimulants as Moral Tools For Creating Opportunities For Socially Disadvantaged Students' (2016) 16 *The American Journal of Bioethics* 29.

<sup>4</sup>JA Plucker and AL Shelton, 'General Intelligence (g): Overview of a Complex Construct and Its Implications for Genetics Research' (2015) 45 *Hastings Center Report* S21, S21.

possibilities of cognitive enhancement are becoming more real every day. Considering the research being undertaken in medicine, genetics, and pharmaceuticals, to increase and promote the development of specific cognitive abilities, and most importantly, general intelligence, it is sensible to start thinking about potential implications now – particularly for the most likely targets: children.<sup>5</sup> This is especially important since international scientists are continuing their efforts of identifying the genetic basis for intelligence and developing interventions to enhance cognitive ability, despite facing much scepticism.<sup>6</sup> The actual or expected success of any such attempts is not the determining factor for the need to engage in thorough analysis, but the reality of such pursuit calls for immediate reflections about the moral and legal issues encountered.<sup>7</sup>

The scientific progress which might eventually lead to successful cognitive enhancement (CE) interventions in children calls into question the sufficiency of many of the current legislative measures which are supposedly in place to protect children and their interests.<sup>8</sup> Only one perspective is covered: namely, the benefits of great cognitive ability. This is because there is an inherent danger with regard to the emergence of CE in overvaluing intellectual potential and misunderstanding the features and consequences of high cognitive ability,<sup>9</sup> which can lead to unjustified discrimination in relation to those expected to be more able than others. At present, anti-discrimination laws, equality schemes, and inclusive education programmes are aimed at strengthening the position of cognitively disadvantaged or disabled children.<sup>10</sup> Children at the other end of the spectrum are by default excluded from access to such measures – without any due consideration of their actual situation.

Two main issues will thus be addressed in this article: first, discrimination in the educational setting, and second, the role and responsibility of the state for the welfare of CE children. Finally, I will attempt to propose a solution to the dilemma of balancing all children's interests with the (financial) strains on

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<sup>5</sup>On the importance of regulating enhancement with regard to children, see L Hagger and GH Johnson, '“Super Kids”: Regulating the Use of Cognitive and Psychological Enhancement in Children' (2011) 3 *Law, Innovation and Technology* 137.

<sup>6</sup>E Yong, 'Chinese Project Probes the Genetics of Genius' 497 *Nature* 297; E Callaway, 'Second Chinese Team Reports Gene Editing in Human Embryos' *Nature* (8 April 2016) [www.nature.com/news/second-chinese-team-reports-gene-editing-in-human-embryos-1.19718](http://www.nature.com/news/second-chinese-team-reports-gene-editing-in-human-embryos-1.19718) (accessed 7 May 2016); J Harris, 'Why human gene editing must not be stopped' *The Guardian* (London, 2 December 2015) [www.theguardian.com/science/2015/dec/02/why-human-gene-editing-must-not-be-stopped](http://www.theguardian.com/science/2015/dec/02/why-human-gene-editing-must-not-be-stopped) (accessed 25 May 2016).

<sup>7</sup>For a suggestion of how regulatory assessment should be carried out with regard to human enhancement, see R Brownsword, 'Regulating Human Enhancement: Things Can Only Get Better?' (2009) 1 *Law, Innovation and Technology* 125.

<sup>8</sup>Although it could be contended that the law's purpose is not to protect children, but the public interest, by enforcing public policies and a neo-liberal political agenda of cost-effectiveness.

<sup>9</sup>Potential is not to be equated with realisation thereof. See K Asbury and R Plomin, *G is for Genes: The Impact of Genetics on Education and Achievement* (Wiley & Sons, 2014) 74: 'Nature requires nurture.'

<sup>10</sup>Whilst the moral objective of justice is not disputed, a case can be made against some of the current approaches. For instance, the practical implementation of inclusion in schools is somewhat problematic but a detailed analysis is beyond the scope of this paper.

both health and educational systems. This will be based on the idea of inclusion, which properly understood should apply to protect the interests of all children,<sup>11</sup> not merely those disadvantaged in a particular way as is currently the case.

With regard to the first issue, discrimination, education law will provide an example: first of all, through its vital effect on the development of children into healthy adults,<sup>12</sup> education plays a direct role in health as a mechanism to prevent psychological illness; and secondly, children spend a significant proportion of their young lives in educational institutions and are exposed (and vulnerable) to the applied policies without being able to defend themselves against potentially harmful implications for their development.<sup>13</sup> An analysis of the treatment of ‘gifted’ children under English law reveals the level of discrimination experienced by those of exceeding intelligence. For instance, although there is nothing in the law to distinguish between different groups of children, the Education Act 1996 has been interpreted by the courts to explicitly exclude ‘gifted’ children from any special needs education consideration and this discrimination was found to be justified for policy reasons.<sup>14</sup> Since CE children are likely to share all the relevant traits with current ‘gifted’ children, their situation illustrates which challenges await future CE children.

The second issue concerns the regulation and facilitation of cognitive enhancement. At present, due to the limited possibilities for cognitive enhancement, the administration of psychoactive drugs is the most common method.<sup>15</sup> However, in the longer term interventions will in all likelihood be genetic, for instance via preimplantation genetic diagnosis (PGD) or gene editing.<sup>16</sup> These procedures are likely to fall within the remit of the Human Fertilisation and Embryology Authority and will constitute regulated activities, which means the state will necessarily be acting as a facilitator if these activities become legally permissible. If the perceived benefits of CE

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<sup>11</sup>My reference to ‘all children’ does not suggest an individualistic approach, but that it should apply to all children in the sense of ‘all groups of children’, not excluding any set of children on the basis of certain characteristics.

<sup>12</sup>Meaning persons of legal age.

<sup>13</sup>Monk argues that both the family and the school ‘represent sites of childhood regulation, surveillance and control’: D Monk, ‘Children’s Rights in Education: Making Sense of Contradictions’ (2002) 14 *Child and Family Law Quarterly* 45, 49. See also Hagger and Johnson (n 5).

<sup>14</sup>*S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* [2005] EWHC 196 (Admin), [2005] ELR 443.

<sup>15</sup>Singh and KJ Kelleher, ‘Neuroenhancement in Young People: Proposal for Research, Policy, and Clinical Management’ (2010) 1 *AJOB Neuroscience* 3.

<sup>16</sup>For maximum benefit, procedures will have to be done early on in life, probably prenatally. Whilst later stage interventions via pharmacological or mechanical means are also likely, genetic intervention attracts most attention due to the genetic basis of cognition. Henry Greely suggests that reproductive technologies will be developed further to allow parents much greater choice over the genetic profile of their children. He believes that advances in stem cell research and genetics will result in ‘Easy PGD’, a procedure combining PGD and IVF to allow for cheap and safe sexless reproduction: see HT Greely, *The End of Sex and the Future of Human Reproduction* (Harvard University Press, 2016).

turn out to be great enough, it is also likely the state will encourage parents to enhance their children, as this would be assumed to have positive network effects on society as a whole, comparable to literacy, numeracy and vaccinations.<sup>17</sup> For the state then not to ensure that CE children reach their potential would be irrational.

Linking these two issues is another important aspect, namely the possibility that CE children might be considered disabled under the current law. This is what I will argue in Part Four, by providing empirical evidence for the lesser-known effects of high general intelligence and applying a social model of disability to gifted children. With regard to CE children, the case might be even stronger, if their cognitive ability reaches a level deemed ‘superhuman’. If this claim can be defended, it would give rise to a dilemma between permitting CE and the current legal prohibition on deliberately creating children with a disability.<sup>18</sup>

Because decisions about CE interventions will soon have to be made, a suitable legal framework to deal with the scientific possibilities and their implications for individual children as well as society at large is required. This needs to be based on ethical principles, such as fairness and beneficence, which in English law are expressed through, inter alia, the doctrine of ‘best interests’ and the prohibition of discrimination. Demonstrating that the law is currently not objective in its application to gifted children, I will argue that as the law fails those children it is by analogy also likely to fail CE children. If the state is to facilitate or even to encourage cognitive enhancement in children, the potential benefits and harms of CE need to be carefully weighed.

This article is in five main parts. First, in Part Two, some definitional matters are dealt with. In Part Three, a comparison between gifted children and CE children is made and their similarities are highlighted. In Part Four, an overview of the law on special educational needs in England is provided and the idea of how this could be perceived as discriminating against gifted and CE children is elaborated. In Part Five, the link between health and education is explained and its impact on the welfare of children is considered. Finally, the issue of responsibility for the welfare of CE children, including the role of the state in this context, is addressed in Part Six.

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<sup>17</sup>This suggestion might appear far-fetched; however, some US schools already require the administration of psychoactive drugs to children with particular behavioural profiles. See Z Stein and others, ‘Ethical Issues in Educational Neuroscience: Raising Children in a Brave New World’ in Judy Illes and Barbara Sahakian (eds), *The Oxford Handbook of Neuroethics* (Oxford University Press, 2011) 803–22, 813.

<sup>18</sup>At least where this requires the use of HFEA-licensed treatment: The Human Fertilisation and Embryology Act 2008 (Part 1, ss 14, 4.9) introduced a prohibition on deliberately ‘selecting in’ disease or disorder.

## 2. Definitions

Before comparing gifted children and CE children, and identifying their similarities, the term ‘giftedness’, which is often the source of much distress – to the children, as well as their families – needs to be defined. This is because such a label is not value-free but instead usually comes with expectations of high achievement attached.

Traditionally, children (and adults) with high intelligence, as measured by standardised IQ tests, are referred to as ‘gifted’.<sup>19</sup> Often the threshold is set at the top 2% of the Bell curve of intelligence,<sup>20</sup> but there is no universal agreement about the label. Despite its popularity, I will reject the terminology as biased and unsuitable for an objective analysis of the current legal situation. Giftedness implies an advantage, possibly an unfair genetic advantage, something which is given not earned, which the bearer ought to be grateful for, and which for the sake of justice should be evened-out in the context of education.

The charity organisation Potential Plus UK, whose purpose it is to ‘support the social, emotional and learning needs of children with High Learning Potential’<sup>21</sup> uses the term ‘child with high learning potential’ (HLP) to acknowledge that a genetic ‘gift’ is not to be equated with achievement, economic success, or happiness. The charity explains the issue:

Perhaps the word ‘gifted’ to you means ‘perfect’, so in labelling a child as ‘gifted’, this must mean that the future prospects for this child are unequivocally bright and free from obstacles? Take this train of thought a little further and you can easily reach the conclusion that no one need worry about this child as they will be successful no matter what life throws at them and which school they go to. Cream surely rises to the top and a ‘gifted’ child is labelled as already being at the top of their class. The ‘gifted’ ones are already high achievers and will surely continue along that path smoothly; destined for success without the need for any further support or assistance.

This is far from the truth; in fact, HLP children are in definite need of extra challenge, support and identification by parents and educators.<sup>22</sup> Value-laden terminology does not further a rational debate, and for this reason, I shall refer to highly intelligent children as HLP children for the purposes of this article, and will start my discussion by explaining the similarities between HLP and CE children.

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<sup>19</sup>The term ‘gifted’ has been described as ‘conceptually and politically problematic’: ET Hansen, S Gluck and AL Shelton, ‘Obligations and Concerns of an Organization Like the Center for Talented Youth’ (2015) 45 *Hastings Center Report* S66, S66. For a historical overview of IQ testing and surrounding controversies, see Plucker and Shelton (n 4).

<sup>20</sup>For instance by Mensa, the high IQ society [www.mensa.org.uk](http://www.mensa.org.uk) (accessed 31 May 2016). Agreeing on a precise threshold is not relevant to my argument.

<sup>21</sup>‘Potential Plus UK’ website [www.potentialplusuk.org](http://www.potentialplusuk.org) (accessed 20 August 2016).

<sup>22</sup>*Ibid.*

### 3. Children with high learning potential (HLP) and cognitively enhanced (CE) children

Despite their best efforts, scientists have so far been unsuccessful in finding reliable ways to enhance cognition in humans. Although gene sequencing and mapping have significantly advanced our knowledge about our genetic make-up, we appear to be stuck at the point where the polygenic character of general intelligence is well-established,<sup>23</sup> rendering genetic manipulation a rather complex endeavour.<sup>24</sup>

Currently, selection is the most promising enhancement approach. The emergence of companies like 23andMe<sup>25</sup> is symptomatic for the desire to understand one's genetic basis, with new technologies now allowing for this knowledge to be translated into concrete actions, albeit with limited success. Whilst prospective parents resorting to IVF for infertility reasons already have an obvious (and depending on jurisdiction, also legal) way of expressing their choice, other parents opt for donor gametes to produce the most desirable offspring possible<sup>26</sup> even in the absence of infertility – intelligence featuring high on the social desirability scale.<sup>27</sup>

#### 3.1. The social desirability of intelligence

Selection attempts are nothing new. Opponents<sup>28</sup> of any kind of enhancement cite the Nazi medical experiments and the eugenics programme as deterrents for anyone open in principle to genetic selection. Although the voluntariness of selective breeding schemes might go some way to counter such arguments, it is undeniable that the Nazi ideology has fascinated some and even led some people to support the frequently ridiculed 'Repository of Germinal Choice' in

<sup>23</sup>LS Gottfredson, *The General Intelligence Factor* (Scientific American, 1998); M McGue and II Gottesman, 'Classical and Molecular Genetic Research on General Cognitive Ability' (2015) 45 *Hastings Center Report* S25.

<sup>24</sup>Although scientific progress is slower than anticipated, efforts to discover the genetic basis of intelligence remain high. Ongoing attempts to genetically manipulate embryos to increase their cognitive ability mean legal and ethical decisions about such interventions will have to be made sooner rather than later.

<sup>25</sup>23andme is a DNA analysis service providing information and tools for individuals to learn about and explore their DNA': [www.23andme.com](http://www.23andme.com) (accessed 25 May 2016).

<sup>26</sup>Even at the cost of giving up their own genetic heritage. See M Henneberger, 'The Ultimate Easter Egg Hunt: "Ivy League Couple" Seeks Donor with "Highest Scores"' *The Washington Post* blog post (21 March 2013) [www.washingtonpost.com/blogs/she-the-people/wp/2013/03/21/the-ultimate-easter-egg-hunt-ivy-league-couple-seeks-donor-with-highest-percentile-scores/](http://www.washingtonpost.com/blogs/she-the-people/wp/2013/03/21/the-ultimate-easter-egg-hunt-ivy-league-couple-seeks-donor-with-highest-percentile-scores/) (accessed 1 May 2016).

<sup>27</sup>Intelligence was found to be the most requested trait by ovum recipients: see H Flores and others, 'Beauty, Brains or Health: Trends in Ovum Recipient Preferences' (2014) 23 *Journal of Women's Health* 830. Another popular contestant is athletic ability. See also J Macur, 'Born to Run? Little Ones Get Test for Sports Gene' *The New York Times* (30 November 2008) [www.nytimes.com/2008/11/30/sports/30genetics.html?pagewanted=all&r=0](http://www.nytimes.com/2008/11/30/sports/30genetics.html?pagewanted=all&r=0) (accessed 28 April 2016).

<sup>28</sup>See J Habermas, *The Future of Human Nature* (Polity, 2003); some express particular concern with regard to researching the genetics of intelligence, see D Roberts, 'Can Research on the Genetics of Intelligence Be "Socially Neutral"?' (2015) 45 *Hastings Center Report* S50.

the United States of America in the 1980s and 1990s. Better known as the ‘Nobel Prize sperm bank’, it received much media attention and despite its ultimate failure, had many supporters, most notably well-educated women hoping for smart and talented children.<sup>29</sup>

The motivation behind cognitive enhancement stems not predominantly from the belief in an intrinsic benefit, i.e. the belief that it is simply better to be more intelligent, but rather that it has significant instrumental value in a globalised and competitive world: greater intelligence is associated with greater success, achievement, income, health, happiness and well-being (or all of the above).<sup>30</sup> A close look reveals that this view is far too simplistic; high learning potential often comes at a price.<sup>31</sup> Nevertheless, the media continuously report about child geniuses, and books such as the one written by the ‘Tiger Mother’ Amy Chua,<sup>32</sup> may convince parents that it is all about intelligence, complemented with rigorous education both in school and at home. Cognition thus seems a probable prime candidate as far as enhancement interventions go, with parents likely opting for above-average or even maximum intelligence. These children would probably be not unlike current HLP children.

### **3.2. High learning potential**

There is no need to turn to fiction to find children comparable to CE children: HLP children already exist and appear sufficiently similar. Both have advanced cognitive abilities in comparison to their peer group, although it is conceivable that CE children will reach intelligence levels exceeding those currently occurring naturally.<sup>33</sup> It is also likely that characteristics, such as asynchronous intellectual and emotional development,<sup>34</sup> will occur in CE children, unless they are also emotionally enhanced.

The challenges faced by HLP children fall broadly into three groups: (i) those down to the ‘differentness’ in comparison to their peers and the potentially resulting social exclusion; (ii) those related to asynchronous development, where emotional maturity lags behind intellectual ability; and, (iii) those related to boredom and lack of stimulation.<sup>35</sup> All of these affect how a child develops, both in terms of character and (mental) health. Since

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<sup>29</sup>D Plotz, *The Genius Factory: The Curious History of the Nobel Prize Sperm Bank* (Random House, 2006).

<sup>30</sup>Although the causal relationship is not always known, see McGue and Gottesman (n 23) S25.

<sup>31</sup>J Freeman, *Gifted Lives: What Happens when Gifted Children Grow Up* (Routledge, 2013). There is also evidence that certain mental illnesses, such as bipolar disorder, are linked to intellectual ability: DJ Smith and others, ‘Childhood IQ and Risk of Bipolar Disorder in Adulthood: Prospective Birth Cohort Study’ (2015) 1 *British Journal of Psychiatry Open* 74.

<sup>32</sup>A Chua, ‘Battle Hymn of the Tiger Mother’ [www.amychua.com](http://www.amychua.com) (accessed 31 May 2016).

<sup>33</sup>‘Natural’ is to mean unenhanced for present purposes.

<sup>34</sup>Potential Plus UK, ‘Asynchronous Development’, *Potential Plus UK* [www.potentialplusuk.org/new\\_parents\\_main.php?contentid=326&webid=250#.VWzbl7ymmcM](http://www.potentialplusuk.org/new_parents_main.php?contentid=326&webid=250#.VWzbl7ymmcM) (accessed 20 June 2016).

<sup>35</sup>Freeman (n 31); Potential Plus UK (n 21).

children spend a large proportion of their time in educational institutions, starting from pre-school to secondary school and beyond, systematised education has a crucial role to play. This is not to say that parental education, taking place at home, is not important, but the state's role in providing the infrastructure for education is essential in determining a child's development. Moreover, in the case of CE children, who will only come into existence if the state permits and facilitates such interventions,<sup>36</sup> the state shares responsibility for the child's healthy development with the parents, as I argue in Part Six below.

Education then becomes a critical component in the lives of both HLP and CE children. Of course this is true for all children, but the current educational system is laid out for the majority of children, and fails to adequately deal with those at the top end of the cognitive ability spectrum. Once CE children become a reality, more children will be affected, which makes it important to review the current protective mechanisms operating in our legal system in an educational context and to check their suitability for dealing with this new type of enhanced child. This leads to the issue of discrimination.

#### **4. Discrimination:<sup>37</sup> (special) education needs in England**

Numerous legal instruments, including various Acts of Parliament and international treaties, are concerned with the rights of children. Internationally, the most relevant document is the United Nations Convention on the Rights of the Child (UNCRC), ratified by the UK on 16 December 1991 and in force from 15 January 1992. Although this has not been incorporated into English law, the calls for this to happen are growing stronger.<sup>38</sup> The UNCRC emphasises the importance of the best interests of the child and in article 3 states that '[i]n all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.'<sup>39</sup> With regard to education, article 29(1) states, *inter alia*, that 'States Parties agree that the education of the child shall be directed to: (a) [t]he development of the child's personality, talents and mental and physical abilities to their fullest potential.'<sup>40</sup> In line with this, Section 1 of the Children Act 1989 defines the welfare of the child as the

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<sup>36</sup>Except any illegally enhanced children, if the state were to seriously restrict or prohibit such enhancements.

<sup>37</sup>I do not use the term 'discrimination' in the strict legal sense, because my argument is an ethical one based on a general, broader meaning of the term.

<sup>38</sup>See Munby J in *R (Howard League for Penal Reform) v Secretary of State for the Home Department* [2002] EWHC 2497 (Admin).

<sup>39</sup>Convention on the Rights of the Child, 20 November 1989, United Nations, Treaty Series, vol 1577, p 3.

<sup>40</sup>*Ibid*, art 29.



paramount consideration.<sup>41</sup> This ‘welfare principle’ has been criticised as being impractical, because of the effort required for a court to establish what is in a child’s best interest – if it were possible at all.<sup>42</sup> In some cases, it could also be seen as a ‘backdoor’: a way to sneak in parental or other interests by reference to the child’s best interests.<sup>43</sup> Regardless of those criticisms, there is an unequivocal intention to protect children as a group, because they are deemed vulnerable as they lack capacity to make fully autonomous decisions, and thus require special (legal) protection to ensure their rights<sup>44</sup> are respected and harms to them are prevented. This is important because ‘[f]or a small child, so much depends on adult decisions, the effects of which can last a lifetime’.<sup>45</sup>

Unlike some other groups of vulnerable people, children’s status as vulnerable is usually temporary and the protective mechanisms last only while they are going through their developmental stage, from which they will, all things being equal, eventually emerge as autonomous and healthy adults of legal age.<sup>46</sup> During this process, education is of particular importance: ‘Education is so fundamental to human development and the process of social reproduction that its recognition as a basic human right is uncontroversial’<sup>47</sup> and it is also recognised as ‘the best mechanism for equalising opportunity and promoting social mobility’.<sup>48</sup>

There is nothing in the legal instruments to suggest that a distinction should be made between different groups of children, so in theory all children enjoy equal rights to have their welfare safeguarded by the state.<sup>49</sup> Contrary to this, however, the courts appear to distinguish between different types of children, for instance on the basis of a child’s learning ability, when they interpret the law in a way that restricts access to special needs education to children with a learning disability and explicitly barring access for HLP children.<sup>50</sup> If there is a duty on the part of the state to consider children’s welfare, this unequal access to remedies for special educational needs appears unjustified and discriminatory and deserves a closer look.

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<sup>41</sup>Children Act 1989 s 1.

<sup>42</sup>S Choudhry and J Herring, *European Human Rights and Family Law* (Hart, 2010) 112.

<sup>43</sup>*Ibid.*

<sup>44</sup>There is debate as to whether such strong (legal) rights actually exist, but it appears uncontroversial that children have rights in the weak sense, i.e. interests meriting at least some form of protection.

<sup>45</sup>Freeman (n 31) 222.

<sup>46</sup>Although the point at which one becomes an adult, i.e. a person of legal age, is arguably set arbitrarily.

<sup>47</sup>N Harris, *Education, Law and Diversity* (Hart Publishing, 2007), Preface.

<sup>48</sup>Asbury and Plomin (n 9) 128. In comparative studies, both the UK and the US have repeatedly come out to be bad at promoting social mobility. See J Blanden, P Gregg and S Machin, *Intergenerational Mobility in Europe and North America* (London School of Economics Centre for Economic Performance, 2005).

<sup>49</sup>It is noted that the UNCRC in art 23 does state that disabled children are entitled to ‘special care’.

<sup>50</sup>See *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14). The previous Guide to SEN specifically excluded gifted children from access to SEN statements; no such exclusion can (yet) be found in the new guidance: Department for Education and Department of Health, *Special Educational Needs and Disability Code of Practice: 0 to 25 years* (2015).

Until recently, in England, Statements of Special Educational Needs (SEN) were available for children with, inter alia, cognitive impairments. The main legal framework was set out in Part IV of the Education Act 1996. It defines ‘Special Educational Needs’ as when a child has a ‘learning difficulty which calls for special educational provision to be made for him’.<sup>51</sup> With the introduction of the Children and Families Act 2014, which replicates the definition of special educational needs, SEN were replaced with Education, Health and Care (EHC) plans. Existing SEN will be converted to such a plan between now and April 2018 and no new SEN will be issued. Some suggest the new law marks a significant change in the approach to special educational needs, with the focus now being ‘very much on “outcomes”, in other words, identifying what the child/young person, parents and professionals want the child/young person to achieve in the long, medium and short-term’.<sup>52</sup> There is also emphasis on close cooperation between ‘education’, ‘health’ and ‘care.’<sup>53</sup> Specifically, the Guidance to the 2014 Act states that:

All children and young people are entitled to an appropriate education, one that is appropriate to their needs, promotes high standards and the fulfilment of potential. This should enable them to:

- achieve their best
- become confident individuals living fulfilling lives, and
- make a successful transition into adulthood, whether into employment, further or higher education or training.<sup>54</sup>

The wording appears promising but it remains to be seen how ‘an appropriate education’ and ‘fulfilment of potential’ are going to be interpreted. Since the rather vague definition of special educational needs has found its way into the new law unchanged, it would seem to continue to apply to the exclusion of HLP children and their learning difficulties,<sup>55</sup> and will also exclude any future CE children. So far, English courts have applied a categorical exclusion of HLP children on the ground that these have not been identified explicitly in the statute as a category of pupils meriting special protection.<sup>56</sup>

The reason for such exclusion appears to be grounded in policy. In *S, Elias J* referred to ‘obvious social and economic reasons why it might be thought

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<sup>51</sup>Education Act 1996 s 312.

<sup>52</sup>‘Special Educational Needs and Disability (SEND) in England’ (*National Deaf Children’s Society*, 2015) [www.ndcs.org.uk/document.rm?id=10449](http://www.ndcs.org.uk/document.rm?id=10449) (accessed 10 April 2016).

<sup>53</sup>D Silas, ‘A Guide To The SEN Code of Practice’ (Kindle edn, 2015) [www.specialeducationalneeds.co.uk/a-guide-to-the-send-code-of-practice-updated-for-201516-ebook.html](http://www.specialeducationalneeds.co.uk/a-guide-to-the-send-code-of-practice-updated-for-201516-ebook.html) (accessed 10 April 2016).

<sup>54</sup>SEND Code of Practice (n 50) para 6.1.

<sup>55</sup>‘Children with Special Educational Needs’ (UK Government, 2015) [www.gov.uk/children-with-special-educational-needs/overview](http://www.gov.uk/children-with-special-educational-needs/overview) (accessed 20 April 2016).

<sup>56</sup>*S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14) [26].

desirable to use resources to help the less able but not the most able'.<sup>57</sup> This view seems to be based on the belief that when resources are limited, other things being equal, it proves more effective to spend those resources on the less able than the most able. However, this perception might be mistaken: as I have already pointed out, HLP children might be more able in one respect but not in others, potentially making them equally responsive to special needs resources as their so-called less able peers. On more careful analysis this response does not seem to justify the exclusion of HLP children from those resources.<sup>58</sup> There is no further insight into what those reasons might be; perhaps there are also concerns that special education for HLP children would prove too costly. Thinking creatively, it is conceivable that 'a right to further education'<sup>59</sup> could be established for HLP children, if their cognitive ability were to become a recognised condition meriting treatment. Considering current costs of higher education, this could pose a serious financial challenge to the state, especially if in the future parents elected to have CE children.<sup>60</sup> Whether such policy reasons are sufficient to justify a deviation or even breach of article 29 of the UN Convention, which specifically refers to the 'development of the child's personality, talents and mental and physical abilities to their *fullest* potential'<sup>61</sup> (my emphasis) seems questionable. At least from a moral perspective, the extent of any harm or suffering ought to be considered in any decision made about the granting of SEN statements, rather than relying on a blanket ban on the basis of some controversial notion of advantaged characteristic (namely, giftedness).<sup>62</sup> According to Asbury and Plomin, 'We don't all have the same talents but we should all have equal opportunities to develop the talents we have',<sup>63</sup> which seems precisely what article 29 requires and what the Guidance to the 2014 Act promises. However, 'while gifted children are accepted as having a need for specialist educational provision the construction of special educational needs precludes their particular difficulties from attracting proper legal recognition'.<sup>64</sup>

Two questions follow: first, what makes particular educational needs so 'special' that they are restricted to only some children; and second, if there

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<sup>57</sup>*Ibid.*

<sup>58</sup>I am grateful to an anonymous reviewer for clarification of this point.

<sup>59</sup>Meaning 'suitable for advanced educational needs' rather than 'further education' in the conventional sense.

<sup>60</sup>Of course such 'treatment' could be excluded from the services covered as a matter of public policy, especially where this was deliberately brought about by parents.

<sup>61</sup>UNCRC (n 39).

<sup>62</sup>It could further be argued that any decision should involve assessment of effectiveness to ensure those children most likely to benefit from educational interventions are identified, irrespective of their categorisation.

<sup>63</sup>Asbury and Plomin (n 9) 30.

<sup>64</sup>Harris, *Education, Law and Diversity* (n 47) 328.

is consensus that all children's needs matter,<sup>65</sup> what can be done to remedy this discrimination?<sup>66</sup>

The Education Act 1996 defines special educational needs as having 'a learning difficulty which calls for special educational provision to be made for [a child]',<sup>67</sup> which can either mean a 'significantly greater difficulty in learning than the majority of children of [the same] age'<sup>68</sup> or 'a disability which either prevents or hinders [the child] from making use of educational facilities of a kind generally provided for children of [the same] age in schools within the area of the local education authority'.<sup>69</sup> The Children and Families Act 2014 replicates most of this, with the exception of a reference to 'mainstream schools or mainstream post-16 institutions'.<sup>70</sup> This means that 'while many children with special educational needs will have a disability, the two concepts are distinct and are not made inter-dependent by statute'.<sup>71</sup>

#### **4.1. 'Significantly greater difficulty in learning'**

The wording of the first category seems vague and unhelpful in practice. Specifically, two problems arise: first, the focus appears to be merely on the ability to learn itself, without considering that the learning experience (and thus actual learning) will necessarily include the setting in which it takes place (i.e. the educational institution). Second, there is no justification for the blanket exclusion of a group of children without consideration of the individual learning difficulties of a particular child. This argument is not about best interests of a child but the best interests of HLP and CE children, a group which by definition forms a minority and as such ought to have their (special) needs considered. It might not be possible to offer optimal education for all children but surely we must not exclude an entire group. Accepting that it would be overly idealistic to demand individualised education for every child, the argument becomes one based on discrimination in relation to a group, not in relation to an individual.

Evidence suggests that HLP children can and often will experience difficulties during their school years, and that those difficulties will be related to their

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<sup>65</sup>Some commentators argue that, although we ought to think about children as individuals with individual needs, when resources are tight priority should be given to those at the bottom end of the cognitive spectrum, because these children will need most help to achieve their potential: see Asbury and Plomin (n 9) 102.

<sup>66</sup>Elias J in *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14) [37], acknowledged that article 14 of the European Convention on Human Rights, the prohibition of discrimination, was engaged with regard to the group of exceptionally gifted children, but held this discrimination to be justifiable: see N Harris, 'Exceptionally Able Children: The Current State of the Law in England' (2015) 16 *Education Law Journal* 175.

<sup>67</sup>Education Act 1996 s 312(1).

<sup>68</sup>*ibid*, s 312(2)(a).

<sup>69</sup>*ibid*, s 312(2)(b).

<sup>70</sup>Children and Families Act 2014 s 20.

<sup>71</sup>Harris, *Education, Law and Diversity* (n 47) 328.

HLP. In a recently published opinion piece,<sup>72</sup> the European Economic and Social Committee (EESC) recognised that

It is possible to come across students with high intellectual ability who struggle to succeed at school and fall among those students who do badly, owing for example to a lack of specific educational care or to problems fitting in. It is also far from uncommon to find students with high abilities who feel ostracised or rejected by their peer group, which also increases the likelihood of school failure. Proper detection and care for highly able students is a factor that can and should help to reduce school drop-out rates and increase the percentage of the population with a higher education, which is one of the basic goals of *Europe 2020: A European Strategy for smart, green and inclusive growth*.<sup>73</sup>

The message of this is clear: HLP children are by no means immune from school struggles, but things can be done to ensure that more potential is realised and fewer problems result. The difference between other children and those labelled ‘gifted’ is that only the former have access to special educational needs assistance. In *S*,<sup>74</sup> it was held that exceptional intellectual ability could not be considered a learning difficulty, so it seems unlikely that this will become a feasible option. This leaves the second category, disability. Below I will show that HLP children in some extreme cases could be considered disabled for the purposes of the Education Act. This is a controversial claim to make because of the positive connotation of giftedness and the negative connotation of disability generally.

#### **4.2. ‘Disability preventing or hindering the making use of educational facilities’**

At first sight, this appears to be clearer than the previous category, because disability is such a well-known concept. But, although it is the kind of thing we recognise when we see it, the legal definition is not easily understood or applied.<sup>75</sup> As specified by the Equality Act 2010, P has a disability if she ‘(a) has a physical or mental impairment, and (b) the impairment has a substantial and long-term adverse effect on P’s ability to carry out normal day-to-day activities’.<sup>76</sup>

There is no requirement for an impairment to be classified under the diagnostic manuals DSM-5 or ICD-10. Rather, the effect on a person’s everyday

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<sup>72</sup>Opinion of the European Economic and Social Committee on ‘Unleashing the Potential of Children and Young People with High Intellectual Abilities in the European Union’ (own-initiative opinion) [2013] OJ C 76

<sup>73</sup>*Ibid*, para 3.1.6

<sup>74</sup>*S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14).

<sup>75</sup>It is important to note here that there is not the one definition of disability in English law. For present purposes, the relevant definition is offered by the Equality Act 2010. However, this has been criticised for its narrowness and definitional exclusiveness. See A Lawson, ‘Disability and Employment in the Equality Act 2010: Opportunities Seized, Lost and Generated’ (2011) 40 *Industrial Law Journal* 359.

<sup>76</sup>Equality Act 2010 s 6.

life is what matters most for the purposes of the Act. Guidance on the Act published by the Office for Disability Issues<sup>77</sup> provides some pointers on how this section is to be interpreted. For completeness, I will briefly address all four, before focusing on the most controversial criterion in the present context.

#### **4.2.1. The four criteria**

The four criteria are: impairment, substantial adverse effects, long-term effects, and impact on normal day-to-day activities.

First, ‘impairment’ is not a very strong criterion and the Guidance explicitly states that ‘[i]t may not always be possible, nor is it necessary, to categorise a condition as either a physical or a mental impairment’.<sup>78</sup> The importance of the impairment criterion lies in the link to the adverse effects.

Second, ‘substantial adverse effects’ is to be interpreted as a ‘limitation going beyond the normal differences in ability which may exist among people. A substantial effect is one that is more than a minor or trivial effect.’<sup>79</sup>

Third, unless the cognitive abilities are only temporarily present, the application of the ‘long-term effects’ criterion seems uncontroversial. HLP as a permanent condition would qualify.

Fourth, in assessing ‘impact on normal day-to-day activities’, such activities explicitly include study and education-related activities.

#### **4.2.2. The most controversial criterion**

Out of these criteria, a classification of HLP as a disability seems most likely to fail on the ground of the second criterion, the ‘substantial adverse effects’ requirement. Given that general intelligence, *g*, is normally distributed, there is symmetry in the form of a Bell curve. If there is a requirement for a limitation to ‘go beyond the normal differences’, this would seem to apply to only the very few statistical outliers where severe disabilities are caused by rare genetic mutations<sup>80</sup> and could be seen to imply a medical model of disability. According to Asbury and Plomin:

The genes that influence most of what we do are common variants rather than rare mutations. They are carried by great swathes of the population, by people at every point of the normal distribution. They combine to influence our thoughts, our behaviour, and how society labels us. What has commonly been referred to as disorder or disability (abnormality) is usually just the low-ability end of the normal distribution.<sup>81</sup>

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<sup>77</sup>Office for Disability Issues, *Equality Act 2010 Guidance* (HM Government, 2011).

<sup>78</sup>*Ibid*, para A6.

<sup>79</sup>*Ibid*, para B1.

<sup>80</sup>Asbury and Plomin (n 9) 25. A distinction is sometimes made between those with a minor intellectual disability, and those who ‘have suffered some significant and specific neurological trauma (of either genetic or environmental origin)’: McGue and Gottesman (n 23).

<sup>81</sup>Asbury and Plomin (n 9) 25.

However, this is not how the law is applied. It is not the few rare statistical outliers who benefit from special protection, but all children at the low-ability end of the normal distribution and we need a reason why the same should not apply at the high-ability end. Arguably, at least those HLP children who show serious ‘symptoms’ (in the sense of having difficulties with their learning) could be included in the category of disabled people under the Equality Act 2010, which would entitle them to the same protection as children with recognised (learning) disabilities.<sup>82</sup>

#### 4.2.3. A social model of disability?

The Equality Act 2010 might present an opportunity for a finding of a disability when it is stated that

[A] person must have an impairment that meets the Act’s definition of disability, or be able to establish that any less favourable treatment or harassment is because of another person’s disability or because of a perceived disability.<sup>83</sup>

This provision appears to introduce a social model of disability, where there is no prerequisite of a recognised medical condition but rather the social implications of a characteristic of a person are considered. In the words of Neville Harris:

The social model [ ... ] takes account of the social context within which the disability is experienced. For that reason, there is greater scope for exceptional ability to be constituted, at least in theory, as a disability under the social model, since in the social setting of a mainstream school setting it has the potential to place those with such ability at a relative disadvantage compared to a majority of others in relation to the benefits accrued from the receipt of teaching. It is clear that, certainly in the education context, the way that disability is dealt with under international legal instruments concerned with the rights of children and young people is broadly consistent with the social model of disability. The UNCRC does not specifically define disability but is orientated towards a goal of maximising the ‘active participation’ of disabled children ‘in the community’ and in having effective access to education, health care and other services ‘in a manner conducive to the child’s achieving the fullest possible social integration and individual development, including his or her cultural and spiritual development.’<sup>84</sup>

Given the frequent bullying teachers and parents of HLP children report,<sup>85</sup> and the reactions of teachers and peers to such children,<sup>86</sup> it could be

<sup>82</sup>This would include the group of so-called ‘twice-exceptional’ children. For details see JW Gilger and GW Hynd, ‘Neurodevelopmental Variation as a Framework for Thinking About the Twice Exceptional’ (2008) 30 *Roeper Review* 214.

<sup>83</sup>Equality Act 2010 Guidance (n 77), part 1, para 8.

<sup>84</sup>Harris, ‘Exceptionally Able Children’ (n 66) 179–80.

<sup>85</sup>Potential Plus UK, ‘Understanding the Challenges Faced by Parents and Carers’ [www.potentialplusuk.org/professionals\\_main.php?contentid=376&webid=368](http://www.potentialplusuk.org/professionals_main.php?contentid=376&webid=368) (accessed 20 April 2016).

<sup>86</sup>Freeman (n 31) 297.

argued that the criterion of less favourable treatment because of a perceived disability is fulfilled.<sup>87</sup> This is convincing evidence, which supports the argument for a finding of disability for at least some of the extreme cases of HLP children. Critics of this claim might contend that this would only be problematic whilst there are few affected children, and that as a result, the socially disabling situation would be ameliorated with the emergence of CE children as highly intelligent children would no longer constitute a minority. There are at least two counterarguments to this: first of all, unless CE became so widespread and applied in a way that the vast majority of children would reach similarly high cognitive ability levels, there will by definition always be top and bottom ends of the spectrum. Adjusting the educational system and societal perceptions of disabilities would thus result merely in a shift in who becomes socially disabled – children currently deemed of ‘normal’ intelligence would suddenly be considered cognitively impaired, whilst the current ‘gifted’ would potentially appear ‘normal’. It appears utopian to believe all children will benefit from CE interventions, and that CE will result in more uniform levels of cognitive ability. Interventions might not work equally well in all children, or not at all in some, and as long as parental autonomy is preserved, some parents might decide against CE for their children even in the light of state incentives. The second reason is that not all negative aspects of HLP are socially induced. Asynchronous development can be problematic in its own right, because young children might be able to understand some situations cognitively but not be capable of handling them emotionally.<sup>88</sup> Furthermore, general intelligence levels have been found to correlate with the development of bipolar disorder in adulthood,<sup>89</sup> as has high sensory sensitivity.<sup>90</sup>

This means a failure to protect these children and to offer them less support than their less intellectually-able counterparts remains discriminatory. There is an unjustified asymmetry in the law, because by default no special educational provision is made for HLP children as a group, despite them experiencing similar educational and social problems as their peers with recognised learning disabilities. Too much seems to count for less than too little – and this will likely affect CE children to the same extent.

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<sup>87</sup>Potential Plus UK, ‘Understanding the Challenges’ (n 85). Evidence suggests that gifted children have a greater risk of suffering from anxiety disorders, partly because of asynchronous development, when emotional, physical, and social development lags behind cognitive development. Further evidence indicates a correlation between anxiety and becoming a victim of bullying. See GE Harrison and JP Van Haneghan, ‘The Gifted and the Shadow of the Night: Dabrowski’s Overexcitabilities and Their Correlation to Insomnia, Death Anxiety, and Fear of the Unknown’ (2011) 34 *Journal for the Education of the Gifted* 669; L Arseneault, L Bowes and S Shakoor, ‘Bullying Victimization in Youths and Mental Health Problems: “Much ado about Nothing”?’ (2010) 40 *Psychological Medicine* 717.

<sup>88</sup>For examples see MJ Morelock, ‘Giftedness: The View from Within’ (1992) 4 *Understanding Our Gifted* 1; W Roedell, ‘I Just Want My Child to Be Happy’ (1988) 1 *Understanding Our Gifted* 1.

<sup>89</sup>Smith and others (n 31).

<sup>90</sup>Harrison and Van Haneghan (n 87).



Absurdly, it appears advantageous to be labelled a disadvantaged child. For parents, to ensure their child receives the best possible education and health treatment, it suddenly becomes desirable to obtain a diagnosis of some sort.<sup>91</sup> This will mean access to support and places a much higher burden on Local Education Authorities and schools to consider the particular needs of the individual child, as well as opening up the possibility for receiving financial support. The incentive for parents to obtain a diagnostic label for their children would increase with any improvements in special needs provisions being made.<sup>92</sup> Although this might equalise the treatment of children by attaching the same label to all, it is not a satisfactory solution for parents, children, or schools. So is a new category for CE children needed?

### 4.3. Cognitively enhanced children

In *S, Elias J* referred to the absence of a category of high-ability pupil as an intended exclusion of HLP children when it comes to special needs education.<sup>93</sup> In light of this, it appears unlikely that such a category will be created any time soon; however, there might be a stronger case once CE children emerge on the educational horizon in significant numbers. Although this might be a pragmatic solution, there is a more fundamental problem with categories and labels in the present context.

First of all, as Neville Harris argues, it is unrealistic to identify clear dividing lines:

The idea of a clear and rigid divide between children who do or do not have special educational needs meets the demand for certainty that surrounds the notion of a legal duty, but the House of Commons Education and Skills Committee has found it to be an ‘arbitrary distinction that leads to false classifications’, and, as Monk argues, the legal construction of a ‘special educational need’ can contribute to the over-simplification of a complex issue.<sup>94</sup>

Arguably, it might suffice to know which children are cognitively enhanced and introduce the category of CE children as requiring special support. However, this assumes the group of CE children to be homogeneous in

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<sup>91</sup>There are recognised medical conditions, which share many of the typical symptoms of high cognitive ability, and which frequently occur concurrently. Examples include Asperger’s autism, and attention-deficit/hyperactivity disorder: N Verkuyl, M Perkins and M Fazel, ‘Childhood Attention-Deficit/Hyperactivity Disorder’ (2015) 350 *British Medical Journal* h2168.

<sup>92</sup>The notion of disability has recently been expanded in the European context: obesity was recognised as a disability by the European Court of Justice in the *Kaltoft* Case C-354/13, ECLI:EU:C:2014:2106, and a woman in France was awarded disability benefits for electrosensitivity, despite this not being a formally recognised disease. ‘Première Reconnaissance en Justice d’un Handicap dû à l’Électrosensibilité’ *Sciences et Avenir* (25 August 2015) [www.sciencesetavenir.fr/sante/20150825.OBS4707/premiere-reconnaissance-en-justice-d-un-handicap-du-a-l-electrosensibilite.html](http://www.sciencesetavenir.fr/sante/20150825.OBS4707/premiere-reconnaissance-en-justice-d-un-handicap-du-a-l-electrosensibilite.html) (accessed 28 May 2016).

<sup>93</sup>*S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14) [26].

<sup>94</sup>Harris, *Education, Law and Diversity* (n 47) 327.

their educational needs, which might turn out to be overly simplistic depending on the actual characteristics of CE children (which we cannot know yet).

Second, labelling can and often does have a negative impact on children.<sup>95</sup> Studies, such as Joan Freeman's longitudinal studies with HLP children into adulthood, show that expectations attached to certain labels affect the development and ultimately the outcome of a child's life.<sup>96</sup> 'Cream' does not always rise to the top of the milk, and 'the road to excellence' can be very difficult and will depend on numerous factors, so an expectation which equates potential with success is not merely mistaken but also harmful to the growing sense of identity of a child.<sup>97</sup> For CE children, such expectations would always be looming over their lives, since their parents would have been at least partially motivated by those expectations to agree to cognitive enhancement of their offspring in the first place. Knowledge of one's status as exceptional in cognitive potential will thus be unavoidable, with all its repercussions for the child. This by itself could be argued to be disabling, at least according to a social model of disability.

#### **4.4. Taking stock**

The preceding discussion highlights the problems with the categories laid down by the Equality Act. Any attempt to classify educational needs as 'special' is unsatisfactory in practice and will lead to significant injustice in many cases. Asbury and Plomin argue that special educational needs ought not to be assessed simply by reference to others or on the basis of their underlying cause, because

all children experience special educational needs at some point. Their difficulties may be temporary or permanent, caused by genes or environment, but they deserve an immediate, sympathetic, personalized response for as long as it takes to address the problem.<sup>98</sup>

It might then be time to rethink the line-drawing and labelling exercise we have become so used to with regard to school children, especially if we consider the extent of the possibilities of cognitive enhancement. Imagine the situation of children with 'superpower' hearing or vision, who will be so distracted in a normal learning environment that it will have a disabling effect on them.<sup>99</sup> At present, they would by default be excluded from any SEN support

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<sup>95</sup>For example by self-pathologising: see C Stevenson, 'Self-Pathologizing and the Perception of Necessity: Two Major Risks of Providing Stimulants to Educationally Underprivileged Students' (2016) 16 *The American Journal of Bioethics* 54.

<sup>96</sup>Freeman (n 31) 297. Incidentally, the same applies to children expected to do less well than their cognitive potential would suggest, such as children from low-income or low-education backgrounds.

<sup>97</sup>Ibid, 10.

<sup>98</sup>Asbury and Plomin (n 9) 112.

<sup>99</sup>Coincidentally, high sensory sensitivity frequently affects HLP children: see Harrison and Van Haneghan (n 87).

due to their belonging to a particular group. What is thus needed is a truly inclusive approach to education, one which will ensure an appropriate education and fulfilment of potential of all existing and future types of children, just as the Children and Families Act Guidance suggests. Before proposing how this could be implemented, I will address the second main issue, the welfare of CE children and the role and responsibility the state has in this.

## 5. Welfare concerns: the link between health and education

There is abundant literature, including numerous studies, on the effect of education on health, income, and social status. Usually the focus is on engagement in unhealthy lifestyles, such as smoking, alcohol abuse, and drug-taking; or on chronic diseases, such as obesity and diabetes.<sup>100</sup> These show that better education tends to lead to greater health, decreased morbidity, and increased well-being, but they illuminate only one aspect of the effect of education on health and neglect another equally important aspect: the impact of the educational setting and thus the social environment on the health of a child in its development. Education, at least when institutionalised, is more than the transference of knowledge and teaching of technical skills – it provides the environment in which identities are formed and personalities are shaped, and the experiences on the journey from kindergarten through secondary school will influence the psychological set-up of a child, both positively and negatively.

### 5.1. HLP and CE children

Whilst the importance of the educational environment applies to all children, it becomes even more critical for children who are somehow ‘different’, in the sense that they do not form part of the majority group.<sup>101</sup> Examples are ethnic minorities, the economically disadvantaged, but also children at the extremes of the cognitive ability spectrum. The educational system in England<sup>102</sup> focuses on the majority group, with special provision made for those at the bottom end of the Bell curve, aimed at mitigating at least some disadvantages. Nothing comparable has been done at the upper end of the spectrum, despite convincing evidence<sup>103</sup> and expert opinion<sup>104</sup> that there is a need for special

<sup>100</sup>DM Cutler and A Lleras-Muney, ‘Education and Health: Evaluating Theories and Evidence’ (National Poverty Center Working Paper Series, #06-19, 2006) [www.npc.umich.edu/publications/workingpaper06/paper19/working-paper06-19.pdf](http://www.npc.umich.edu/publications/workingpaper06/paper19/working-paper06-19.pdf) (accessed 20 October 2016) CE Ross and C-I Wu, ‘The Links between Education and Health’ (1995) 60 *American Sociological Review* 719.

<sup>101</sup>Freeman (n 31) 263: ‘Bullying is associated with being exceptional in some way. It happens to children who do not fit in, when power is uneven.’

<sup>102</sup>And in many other Western societies: See CJF Russo and Y Donna, ‘Education for Gifted Students in the United States: An Area in Need of Improvement’ (2015) 16 *Education Law Journal* 188.

<sup>103</sup>See Freeman (n 31) 292, who in 1998 was asked by the UK Government’s Office for Standards in Education to report all the international scientific research on gifted children, and who pleads for education authorities to make provision for the learning needs of gifted children.

<sup>104</sup>Council of Europe Parliamentary Assembly, *Education for Gifted Children* (Recommendation 1248, 1994).

educational provisions for HLP (and thus CE) children. That education is health-affecting because of its direct link to the physical, mental, and cognitive development of children also appears to have been legally recognised, for instance, in the Children Act 1989,<sup>105</sup> as well as through the recent special educational needs reforms, which changed the previously granted ‘special education needs statements’ into ‘education, health and care plans’.

Given this link between health and education, an argument in favour of considering the needs of HLP (and CE) children based on prevention emerges.

## **5.2. Healthy development**

Education can act as a prevention mechanism for many health problems, not merely through the conventional approach of teaching about healthy living and lifestyle choices, but also by providing an environment conducive to the healthy development of children. This includes both positive factors, such as the provision of encouragement and challenge, and negative factors, such as the absence of bullying<sup>106</sup> and social disapproval. An appropriate educational setting could thus be comparable to an immunisation programme, because it equips children with the best chances of leading a healthy life by preventing mental harm.

Although this again applies to all children, there is a difference with regard to HLP children in that their particular needs (as a group and as individuals) are inadequately met in an educational system designed to cater for the Bell curve mid-section. Moreover, their exceptionality often leads to negative reactions from peers<sup>107</sup> and teachers. So, although the ‘gifts’ of themselves are not usually the cause of any emotional problems experienced by HLP children,

[t]he excitement of gifted-level discovery is viewed as excessive, their high energy as hyperactivity, their persistence as nagging, their imagination as not paying attention, their passion as being disruptive, their strong emotions and sensitivity as immaturity, and their creativity and self-directness as oppositional.<sup>108</sup>

This negative reaction to what is essentially the ‘nature’ of an HLP child can seriously risk the psychological health of a child in its development, as it affects self-confidence and self-image. The result might be anxiety or

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<sup>105</sup>‘Welfare of the child’ in s 1 of the Children Act 1989, which in subsection (3) refers to ‘physical, emotional and educational needs’ as relevant factors to be considered by the court.

<sup>106</sup>A great cause of upset in a school environment is bullying, which is rather commonplace. See HA Ball and others, ‘Genetic and Environmental Influences on Victims, Bullies and Bully-Victims in Childhood’ (2008) 49 *Journal of Child Psychology and Psychiatry* 104, who found that approx. 25% of children at age 9 to 10 years were victims of moderate to severe bullying.

<sup>107</sup>Freeman (n 31) 263.

<sup>108</sup>*Ibid*, 297.

depression, both known to be caused by a feeling of low self-worth.<sup>109</sup> In contrast, if the schooling and educational experience for current HLP and future CE children is carefully monitored and necessary adjustments are made, risks to mental health can be minimised – similar to a ‘mental vaccine’ by teaching these children that their differences are merely in (cognitive) ability and not in value as persons.<sup>110</sup> Besides the benefit for individuals, there is also a wider, public interest argument based on cost.

### **5.3. Economic argument**

A common argument against any special educational measures for HLP children is cost. Whilst it is perceived as our duty to compensate for obvious physical or mental disadvantages of, inter alia, children with disabilities, there is no equivalent emotion with regard to HLP children. A ‘gift’ is perceived as a privilege despite the fact that being born with high cognitive potential does not imply achievement or success; there are plenty of examples where potential was not used well, for the persons themselves or society.<sup>111</sup>

Concerns expressed about the potential cost of catering for a currently small group of children are unconvincing for two reasons. First of all, in the current technological era, tailoring education to minority groups or even individual children has become both manageable and affordable,<sup>112</sup> and second, if future health costs arising from inadequate education and educational settings for HLP and CE children are taken into account, the argument in favour of investing in high-level education for those children becomes strong in economic terms, in addition to the previous ‘preventative medicine’ argument. The more widespread CE becomes, the stronger the cost argument will become. The financial benefits for a state of investing in education and training have long been recognised, for instance by the UN Committee on Economic, Social and Cultural Rights and the Department for Work and Pensions in the UK.<sup>113</sup>

Having established the link between education and health, the impact inadequate educational provision can have on HLP and by analogy on CE children has hopefully become clear and the argument that special educational measures ought to be taken for those more cognitively able children has been sufficiently substantiated. It has been demonstrated that the state has at least an economic interest in ensuring the well-being of all children. Prevention, however, is only one side of this: productivity another. This leads to the

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<sup>109</sup>Harrison and Van Haneghan (n 87).

<sup>110</sup>AS Masten and JD Coatsworth, ‘The Development of Competence in Favorable and Unfavorable Environments: Lessons from Research on Successful Children’ (1998) 53 *American Psychologist* 205.

<sup>111</sup>Freeman (n 31) 10.

<sup>112</sup>Asbury and Plomin (n 9) 150.

<sup>113</sup>Harris, *Education, Law and Diversity* (n 47) 29.

final part, namely the role of the state and the question of responsibility for the welfare of CE children.

## 6. The role of the state and the question of responsibility

As mentioned above, the most promising CE technologies appear to be genetic ones, such as PGD and gene editing. Depending on the technology used, issues relating to the treatment of embryos as regulated by the HFE Acts<sup>114</sup> might thus arise, meaning that any intervention would need to be carried out in a licensed clinic, which would be governed by the Human Fertilisation and Embryology Authority (HFEA). Such clinics need to comply with section 13(5) of the 1990 Act, as amended by section 14(2)(b) of the 2008 Act, which states that:

A woman shall not be provided with treatment services unless account has been taken of the welfare of any child who may be born as a result of the treatment (including the need of that child for supportive parenting), and of any other child who may be affected by the birth.

Failure to do so would lead to a loss of the licence. More importantly, however, if there were clear disbenefits of cognitive enhancement, then if section 13(5) were applied, there would be no licences granted for such interventions. As the law stands, some probable methods of genetic enhancement are prohibited: under section 3ZA of the 1990 Act it is illegal to implant an embryo with altered DNA or to add cells to an embryo and section 4 prohibits the use of nonhuman material or the implantation of nonhuman embryos. This leaves the possibility of embryo selection, which might already be occurring, for instance by screening out fragile X syndrome embryos, and which might be expanded once more of the intelligence-related DNA units (single nucleotide polymorphisms) have been identified.<sup>115</sup>

If the state permits such interventions, for instance through the granting of licences under the HFEA, it can be said to be acting at least as a facilitator. It is quite possible, however, that the state will play a much more active part in promoting CE in children. Whilst most of the debate surrounding enhancement focuses on regulating a private market, Buchanan cautions that ‘it is naïve and dangerous to assume, as almost all participants in the enhancement debate do, that the state at most will play the role of restraining individual choices regarding enhancements’.<sup>116</sup> Productivity-increasing measures are of utmost interest to the state and in the ‘public interest’, and as such, CE

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<sup>114</sup>Human Fertilisation and Embryology Act 1990; Human Fertilisation and Embryology Act 2008.

<sup>115</sup>For an overview of the current status of genetic prediction with regard to intelligence see E Turkheimer, ‘Genetic Prediction’ (2015) 45 *Hastings Center Report* S32.

<sup>116</sup>A Buchanan, ‘Enhancement and the Ethics of Development’ (2008) 18 *Kennedy Institute of Ethics Journal* 1, 12.

will fall within the same category as vaccines, basic healthcare, and education – measures provided and incentivised by the state not merely for a love of its citizens but because of their productivity-increasing effects.<sup>117</sup> Given this dual role of the state – as regulator and potential beneficiary – the question arises as to what this means in terms of responsibility. Customarily, the concept of parental responsibility places the burden of ensuring the well-being of children on parents<sup>118</sup> but the state necessarily shares in this.

### **6.1. State responsibility**

Not merely with regard to education, the state acts ‘as an agent for the parent fulfilling a basic moral and legal duty’.<sup>119</sup> As such, there exist parallel duties to ‘ensure that a child receives an “efficient” education “suitable” to his or her “age, ability and aptitude”’.<sup>120</sup> As argued above, this duty is not adequately fulfilled in the context of HLP children. By expanding section 312 of the Education Act 1996 (as replicated by section 20 of the Children and Families Act 2014), the categorical exclusion of HLP (and CE) children from gaining access to special protection measures could be remedied. So far, an attempt to do so on the basis of discrimination was struck down in *S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council*.<sup>121</sup>

Nevertheless, absent any major legislative changes, this option seems most feasible and realistic in the short term. There are plenty of opportunities to protect all children, including those not currently classed as disabled or as having special educational needs, assuming there is a willingness to do so. The courts so far have shied away from a more creative interpretation of the law and there are undoubtedly political and policy reasons for not expanding the class of SEN; however, if we are serious about the welfare of the child, there is no justification for a refusal to assess needs on an individual basis and relying on arbitrary or politically-motivated groupings.

### **6.2. Parental responsibility**

Section 3 of the Children Act 1989 defines parental responsibility as all the rights, duties, powers, responsibilities and authority which by law a parent of a child has in relation to the child and his property.<sup>122</sup> However, the concept lacks a consistent meaning, with courts and commentators struggling

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<sup>117</sup>Ibid, 3.

<sup>118</sup>Education is also regarded ‘a primary duty of parenthood’. See Education Act 1996 s 7 and Harris, *Education, Law and Diversity* (n 47) 17.

<sup>119</sup>Harris, *Education, Law and Diversity* (n 47) 42.

<sup>120</sup>Ibid and Education Act 1996 s 7.

<sup>121</sup>*S v Special Educational Needs and Disability Tribunal and Oxfordshire County Council* (n 14).

<sup>122</sup>Children Act 1989

to explain the term.<sup>123</sup> The Children and Young Persons Act 1933 makes it an offence to mistreat children.<sup>124</sup> This includes wilful assaults, ill-treatment, neglect, abandonment, and exposure to unnecessary suffering or injury to health.<sup>125</sup> In a recent parliamentary debate,<sup>126</sup> the question of whether the Act should be expanded to include emotional neglect was addressed and the Serious Crime Act 2015 now amends the 1933 Act to explicitly include psychological suffering.<sup>127</sup> Time will tell what the implications are, if any, for parenting.

Parental decision-making is not unrestrained. If there are concerns about the welfare of a child, a court is allowed to make a care or supervision order under section 31(2) of the Children Act 1989, provided there is (or is likely to be) significant harm to the child, attributable to the care given to the child. For the purposes of this section, harm means ill-treatment or the impairment of health or development, which includes physical, intellectual, emotional, social or behavioural development, and physical or mental health. *In Re O (A Minor)*<sup>128</sup> it was held that, when deciding if a child is suffering harm, a comparison must be made with what could be expected of a similar child of the same intellectual and social development. The reference to intellectual development is interesting, because it could be interpreted to mean HLP/CE children should be compared to other comparable HLP/CE children – and not to average children – when it comes to establish harm suffered.<sup>129</sup>

Given that parents are legally and morally responsible for the welfare of their children, the question arises whether any additional needs of a child due to enhancements deliberately chosen by parents could give rise to a corresponding parental duty to address those needs, however cumbersome. Considering the suggestion to extend the criminal law in the area of child neglect to include psychological suffering, it could be argued that enhancing children to make them more intellectually capable means a case could be made against parents who fail to adequately ‘feed’ their children intellectually. The head of Ofsted, Sir Michael Wilshaw, has recently called for fines for parents who do not read to their children.<sup>130</sup> Arguably, the case for applying such fines to parents of CE children is even stronger. However, the appropriateness of

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<sup>123</sup>J Herring, *Family Law: Issues, Debates, Policy* (Routledge, 2001) 133.

<sup>124</sup>Children and Young Persons Act 1933 s 1.

<sup>125</sup>*Ibid*, s 1(1).

<sup>126</sup>“Cinderella” emotional cruelty law considered’ *BBC News* (31 March 2014) <http://www.bbc.com/news/uk-26814427> (accessed 10 August 2016). This led to the Serious Crime Bill 2014.

<sup>127</sup>Serious Crime Act 2015 s 66: ‘whether the suffering or injury is of a physical or a psychological nature.’

<sup>128</sup>*Re O (A Minor) (Care Order: Education: Procedure)* [1992] 4 All ER 905.

<sup>129</sup>With the possible emergence of CE children, this could pose a serious challenge if extreme outliers, i.e. children with ‘super-abilities’ were to be created.

<sup>130</sup>Schools should Fine “Bad Parents”, says Ofsted Chief *The Guardian* (London, 17 June 2014) [www.theguardian.com/education/2014/jun/17/schools-fine-parents-ofsted-michael-wilshaw](http://www.theguardian.com/education/2014/jun/17/schools-fine-parents-ofsted-michael-wilshaw) (accessed 17 June 2016).



the criminal law for addressing inadequate parenting is questionable, not least because there is no evidence that it would prove effective. Judging by the courts' decisions to date, unless legislative changes are made to the effect, it seems doubtful that any current legislation will be interpreted in a way to 'enhance' parental responsibility in cases of CE children. The law directly does little to intervene with harmful parenting choices, unless the child is suffering significant enough harm to justify state intervention; and as Herring points out, 'the courts have suggested that legal procedures should not be used to resolve day-to-day issues relating to children'.<sup>131</sup>

In summary, an expansion of the legal concept of parental responsibility might be a way of improving the situation of HLP and future CE children, but all things considered, it is unlikely that the courts would be willing to interpret the law in a sufficiently broad way. Furthermore, it is unlikely that all parents will be capable of meeting all the needs of their CE children without the help of the state, which also stands to benefit significantly from the existence of such highly able children.<sup>132</sup> It is thus argued that the state not only shares in the responsibility of parents, but in the case of CE children will have to assume 'enhanced' responsibility for the welfare of those children. One approach to do this and to remedy the current unfairness would be to rework the concept of inclusion.

### 6.3. Inclusion

There is no reason why inclusion should remain merely a buzzword;<sup>133</sup> if it were applied to all children, the concept could gain in substance and meaning. HLP children should not be categorically excluded from the protections of education discrimination law, but their special educational needs should be identified and addressed in the same way as for children with learning difficulties or disabilities.

Three aspects of child development research are of particular relevance in this context. The first is the process of learning and its importance for healthy child development. Praising children for ability rather than effort encourages a 'fixed mindset', which harms their ability to achieve their full potential.<sup>134</sup> They will become reluctant to risk failure.

Research with children of all ages – even toddlers – tends to show that children who are praised for ability rather than hard work become fearful of failure and nervous of taking risks, and that this in turn inhibits their progress. Praise for ability actually makes them less confident and less successful.<sup>135</sup>

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<sup>131</sup>Herring (n 123) 148.

<sup>132</sup>If there were no expected benefits, the moral permissibility of CE would be in question.

<sup>133</sup>B Byrne and others, *The Legal Rights of Students with Disabilities: International Perspectives* (Rowman & Littlefield, 2011) 7.

<sup>134</sup>Asbury and Plomin (n 9) 155.

<sup>135</sup>*Ibid*, 98.

In a one-size-fits-all educational system, the most able students often struggle to find sufficiently challenging tasks.<sup>136</sup> Praise for the successful completion of any given exercise will thus by default be for ability rather than effort – because no or very little effort is required in the first place. A failure to challenge HLP children could lead to a lack of confidence and anxiety, and depending on its extent this could well mark the beginning of an actual mental illness. This would also seem contrary to the proclaimed goal in the Guidance to the Children and Family Act 2014, which refers to ‘an appropriate education’ as one which enables children to ‘become confident individuals’.<sup>137</sup> Clearly, there is more to the argument of addressing the needs of HLP children than ideological conviction.<sup>138</sup> Standardised treatment will not do; just as it does not for children with cognitive impairments: ‘Equality of opportunity requires diversity of opportunity.’<sup>139</sup>

The second aspect relates to positive influences on academic achievement. Peer relationships have been highlighted as a potential source of non-shared environmental influence. Behavioural genetic research into friendship and bullying suggest that these are directly relevant to how well children perform at school.<sup>140</sup> A correlation between anxiety and the risk of becoming a victim of bullying at school has also been revealed.<sup>141</sup> Combined with evidence that HLP children are frequently the victims of bullying,<sup>142</sup> there are reasons to believe that they are at least as vulnerable and deserving of special consideration as children with learning disabilities.

Finally, another important aspect is basic genetics. The genes, which determine whether we are good at something or not, are the same for all of us.

The genes that affect mathematical ability of a mathematics professor and a young person struggling to pass a basic mathematics exam are the same, albeit not necessarily in the same versions (alleles). This makes an enormous difference to how – and whether – we diagnose special educational needs, at the levels of both struggling and gifted children.<sup>143</sup>

There is no basis on which to ground a differential treatment of the two extreme ends of the cognitive spectrum, at least not one based on genes. In addition, the dwindling popularity of a purely medical model of disability in favour of a social model, suggests inclusion should be properly understood as covering all children, because HLP children might be exposed to an environment in which

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<sup>136</sup>While the law has long sought to accommodate the diverse needs of children with special educational needs, there is also, increasingly, a more general rejection of the “one size fits all” approach to educational provision, particularly in the context of secondary education’: Harris, *Education, Law and Diversity* (n 47) 10.

<sup>137</sup>SEND Code of Practice (n 50) para 6.1.

<sup>138</sup>Asbury and Plomin (n 9) 156.

<sup>139</sup>Ibid, 146.

<sup>140</sup>Ibid, 121.

<sup>141</sup>Arseneault, Bowes and Shakoor (n 87); Harrison and Van Haneghan (n 87).

<sup>142</sup>See Potential Plus UK website (n 21).

<sup>143</sup>Asbury and Plomin (n 9) 142.

they might be as ‘disabled’ due to social factors as their peers at the opposite end of the Bell curve.<sup>144</sup> They might find themselves in an educational setting that turns out to be disabling, but the lack of intrinsic (medical) disability does not mean their needs should be trivialised. And they need not be, because there are several ways in which inclusion policies could be applied to HLP children – and to CE children. Support in the educational context is already available; it just needs to be made available to all groups of children.

Unfortunately, the current refusal to think about special educational needs in broader terms<sup>145</sup> leads to the undesirable situation where parents will be pushed to do everything they can to get their children labelled, as discussed above, in order to access support for their children’s needs. The alternative solution would be an expansion of our current notion of disability towards a fully social model. Based on the available evidence, this could then be applied to protect HLP and CE children alike.<sup>146</sup> I would hope the need for labelling or (further) medicalisation of normally occurring genetic differences would decrease rather than increase.

First, such an approach would be unlikely to be effective, because it would not involve a proper consideration of individual educational needs but rather offer yet another standardised solution for an expanded group of disabled children. A label of disability would not make the children in this group any more similar than they previously were, and as Asbury and Plomin suggest, it is diversity of opportunity which is needed. It is about setting an educational agenda which can provide appropriate challenges at each level of cognitive ability.

Second, if disability were to be the pathway into access to special education provision, this might provide an incentive to get children labelled regardless of their actual ability. Conditions might be ‘made up’ by parents, or exaggerated, which are not there (yet). Again, this would not be conducive to meeting HLP children’s needs. Although there might be advantages to labelling in some cases on an individual level, it could hinder the development of an environment of tolerance and acceptance of individual differences both at a school and a societal level. As Asbury and Plomin remark:

Well, for one thing being labelled as having a medical disorder, a bona-fide learning disability, opens up more services to families and removes the stigma associated with just not being very good at something. As a society we believe that disability is more acceptable than low ability.<sup>147</sup>

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<sup>144</sup>For an account of how mental health law lags behind this development, see B Clough, ‘“People Like That”: Realising the Social Model in Mental Capacity Jurisprudence’ (2015) 23 *Medical Law Review* 53.

<sup>145</sup>For a detailed analysis of the reasons for the ambivalence towards giftedness and gifted education, see RF Subotnik, P Olszewski-Kubilius and FC Worrell, ‘Rethinking Giftedness and Gifted Education: A Proposed Direction Forward Based On Psychological Science’ (2011) 12 *Psychological Science in the Public Interest* 3.

<sup>146</sup>Popularity of this option amongst disability rights advocates is doubtful.

<sup>147</sup>Asbury and Plomin (n 9) 48.

Finally, I do not think such an approach would be efficient. It would require significant bureaucratic effort to assess large numbers of children and to decide on a case by case basis, which children qualify.

## 7. Conclusion

It is striking how illogicality is accepted when it comes to discussions about giftedness. On the one hand, we are told all children are equal, that they should be loved and cared for in way that is adequate for them as individuals. Yet when a child turns out to be ‘gifted’, we are asked to withdraw precisely this individualised support to compensate for what is perceived as an (unfair) genetic advantage. This makes no sense and disadvantages children who through no fault of their own are born with a somewhat greater potential for learning than others. The current unwillingness to see this unfairness will eventually have to be faced when CE children start appearing in our world. Whether things will then improve for HLP and CE children remains to be seen, but at least those disapproving of genetic difference will have someone to blame for the peculiarities of those children: parents, who made the decision to enhance, and the state, for permitting such interventions.<sup>148</sup>

So where do we go from here? In an ideal world, we would establish an educational system, which does justice to all children’s educational and developmental needs, without a requirement for labelling or medicalisation of normally occurring (genetic) differences. However, since Utopia is a long way from here, I suggest we are better off addressing the current disequilibrium in the law by removing prejudices towards children with the most cognitive potential and accepting them as equally vulnerable as the least intellectually able children. This will help to avoid discrimination across the cognitive spectrum, by preventing the victimisation of those at the bottom end and the false expectations<sup>149</sup> and wrongful assumptions about achievement, success, and well-being of those at the top end.

I do not wish to deny that in many cases priority should be given to those children with lowest cognitive ability, as these will struggle the most. Unfortunately, resources allocated to education are tighter than they should be, given the importance of education for a flourishing society – not least because education is strongly related to both mental and physical health, as I explained at the outset. Again to quote Asbury and Plomin, ideally,

in a country with the resources and the will to take it further, the fact of genetically influenced individual differences begins to come to play for everyone, not just those who struggled to fill their basic toolkits. Once pupils have been

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<sup>148</sup>Assuming the state to be involved in the creation of CE children. An interesting question is how the law would reconcile treating HLP as a disability, given the prohibition of preference selection for serious physical or mental disability under s 13(9) of the HFEA 1990.

<sup>149</sup>‘Unleashing the Potential’ (n 72) para 3.2.6.

equipped with these basic skills they need to function effectively in the world, the focus must switch to drawing out individual potential. In this way schools can promote individual fulfilment and achievement and prepare cohorts of young people who know their talents and have been educated to use them. Society will surely benefit from generation after generation of young people with a firm grasp of core skills underpinning a wide range of specialist abilities and interests. We would predict positive impacts on health, law and order, employment, and the economy.<sup>150</sup>

Countries such as Finland demonstrate that there are new and innovative ways of approaching education,<sup>151</sup> which will likely result in better overall educational attainment and a healthier society.<sup>152</sup>

The point is often made that this would prove too costly. However, as argued above, the healthy development of children necessarily passes through educational institutions, which makes it an economic priority to invest in all children receiving an appropriate education – as well as a moral one. The recent changes with regard to psychological harm indicate that the responsibility for ensuring children are appropriately educated might shift entirely to parents. However, as I have argued, this is unlikely to prove effective and once cognitive enhancement (for instance through genetic means) becomes available, the state will have a hard time avoiding at least partial responsibility for the special educational needs of this new type of child.

On a positive note, there lies significant potential within both HLP and CE children, and giving them the opportunity to develop their potential to the fullest is not only likely to result in reduced costs for healthcare and welfare, but also in increased productivity at a societal level. In essence, it can be argued that to leave these children to their own devices without addressing their enhanced needs will not be in the public interest, because potential will be wasted. Whilst there are historical and societal reasons for giving the needs of the so-called gifted lower priority than disabled children, this is difficult to accept when in the future the gift will not be merely due to nature but rather be caused by deliberate and intentional actions of parents, the medical profession and tolerated, facilitated and possibly even encouraged by the state. In this case, it appears at least a partial responsibility of the state to deal with any negative side-effects, if there is a perceived benefit which the state hopes to receive. Until the state assumes such responsibility for all children, it would be a significant first step to work towards a more objective application of the

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<sup>150</sup>Asbury and Plomin (n 9) 8.

<sup>151</sup>R Garner, 'Finland Schools: Subjects Scrapped and Replaced with "Topics" as Country Reforms its Education System' *The Independent* (London, 20 March 2015) [www.independent.co.uk/news/world/europe/finland-schools-subjects-are-out-and-topics-are-in-as-country-reforms-its-education-system-10123911.html](http://www.independent.co.uk/news/world/europe/finland-schools-subjects-are-out-and-topics-are-in-as-country-reforms-its-education-system-10123911.html) (accessed 25 May 2016).

<sup>152</sup>For specific recommendations based with regard to Gifted Education based on psychological science, see Subotnik, Olszewski-Kubilius and Worrell (n 145).

current law to all children, and to challenge our own insufficiently informed conception of high learning potential.

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### **Notes on contributor**

*Jenny I. Krutzinna* is Doctoral candidate in Bioethics and Medical Jurisprudence at the Centre for Social Ethics and Policy, School of Law, at the University of Manchester, United Kingdom.

### **ORCID**

*Jenny I. Krutzinna*  <http://orcid.org/0000-0002-7949-5020>