

2 Feminism and Enhancement

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Introduction

Two of the fastest growing areas in philosophy are feminist philosophy and the philosophy of technology, broadly construed. Both of these developments should be unsurprising when looking at the history of the field. Philosophy has historically been primarily white and male, providing a more limited set of perspectives, which has left a space for emerging feminist perspectives to provide novel insights on old philosophical problems and highlight issues that may have previously been overlooked. On the other side, advances in technology are happening at a seemingly accelerating rate (Farmer & Lafond, 2016; Nagy et al., 2013; Singhal & Carlton, 2019). This provides philosophers with a new research area that offers novel problems, in particular ones that are relevant and pressing for society. Here, we aim to combine insights of these fields to bring a feminist perspective to a subject that has received much attention in bioethics research over the last decade: the subject of enhancement technologies. Before we begin, however, consider the following Shakespeare quote:

Oh, wonder!

How many goodly creatures are there here! How beauteous mankind is! O brave new world, that has such people in't!

(The Tempest by William Shakespeare (Act V))

This paragraph is said to have inspired Aldous Huxley's (1932) dystopian novel *Brave New World*, in which members of society are "enhanced" through the use of futuristic genetic and environmental interventions, to create a hierarchical class-based society, kept happy through provision with a fictional mood-enhancing drug called *soma*. With the use of both genetic and mood-altering technologies, it is hardly surprising that Huxley's novel is frequently mentioned in modern discussions on the rise of enhancement technologies, typically to emphasise their risks.

With the history of technological progress being to at least some extent also a history of misuse, inviting continuous attention towards its potential misapplications (Fridlund, 2011; Getz & Delleire, 2018; Nielsen & Barratt, 2009; Tucker & Flanagan, 2010), it is thus desirable to take a critical lens to new technologies, especially those that can change our genes and our minds in possibly unforeseen ways. It is for this reason that we have chosen in this chapter to demonstrate the potential usefulness of a feminist perspective on new enhancement technologies. Feminist philosophy focuses on understanding and confronting the institutions, structures, and activities that enact and reinforce the oppression of women; but more generally can be used to examine inequalities of all types and between members of different oppressed groups or intersections thereof. In particular, we will pay attention to the three points of focus within the debates on enhancement: genetic enhancement, cognitive enhancement, and finally moral enhancement. Rather than examine any specific technology or application in detail, here it is our aim to take a feminist lens to a more general survey of some of the issues that might arise through the use of different types of enhancement, with a particular focus on how use of such technologies may promote or ameliorate inequalities.

This chapter is structured as follows. In Section 2, “The Enhancement Debate,” we introduce the background to the philosophical and ethical debate around enhancement technologies. In Section 3, “Enhancement from a Feminist Perspective,” we use a feminist lens to examine genetic, cognitive, and moral enhancements, respectively, before we summarise the lessons in Section 4, “Conclusion and Further Directions.”

The Enhancement Debate

At a first glance, there may seem to be little inherent problem with the use of new technologies to enhance our lives or, for that matter, ourselves—after all, what could be wrong with making things better? In line with this, there are plenty of examples of technologies that appear to be genuinely helpful additions to our lives: from eyeglasses and wheelchairs, to smart phones. These can come to form such an integral part of our experience that often we stop seeing them as separate from ourselves—glasses can be easily removed, and yet it typically appears almost as if they are experienced as part of the body. However, many cases are far less straightforward. The reason there is such a large bioethical literature on enhancements is precisely because of the range of more controversial cases, those that expose the different ethical viewpoints of the participants within these debates.

What is probably the central point of opposition to enhancement technologies relates not so much to the potential benefits or drawbacks enhancements may provide to individuals, but rather the possible negative social

effects, in particular the potential to accentuate inequalities (see for instance Mehlman & Botkin, 2011). Within the context of a free market, and with unequal access to enhancements, some philosophers have expressed the worry that a cognitively enhanced elite could accumulate power and create an even more unequal society (Bostrom & Roache, 2007; Parens, 1998).

Elsewhere, one of us has provided a criticism of this commonly made “inequality objection” against allowing human enhancements (Veit, 2018a,b), pointing out that there is little evidence that such an outcome would occur, or that it would be costly enough to outweigh the potential benefits. However, these papers were primarily concerned with material and economic inequalities, paying no attention to the question of whether such technologies could support or intensify existing structures of oppression within our society—particularly patriarchal ones. While the use of enhancement technologies for the creation of a new class of elites may not seem all that likely, it is not hard to imagine how they could sustain or worsen existing inequalities; an investigation for which feminist philosophy is particularly well placed. However, this possibility has not been paid much attention, with even the *Stanford Encyclopedia* article on enhancement by Juengst and Moseley (2019) making scarce mention of the usefulness of a feminist perspective. It is this oversight that we aim to address here.

While discussions on enhancements often focus on contrasting them to medical treatments, we are critical of the idea that there is some morally relevant intrinsic property that could distinguish them or bring only the latter within the scope of standard medicine (see also Erler, 2017; Holtug, 2011; Juengst & Moseley, 2019; Resnik, 2000 for critical discussions of the merit of this distinction). Rather than a focus on distinguishing pathological from normal conditions, we see the value in all such actions or interventions as arising from the potential to significantly improve someone’s wellbeing or autonomy; whether or not this should be termed a treatment or an enhancement (see also Savulescu et al., 2011). This is also relevant to discussions on the gender-affirming medical technologies available for trans people, which Zohny et al. (2022) argue are probably best conceived of as enhancements rather than medical treatments, where the latter carries unwelcome implications of pathology (see also Venditti, this volume). We don’t deny that we can recognise social norms that delineate some conditions as pathological, whereas others are just considered to be normal components of human diversity. But feminist thought is particularly critical of the idea that we should conflate current social norms with those that would be desirable to have.

What we want to focus on the following sections is how new enhancement technologies could both threaten and benefit the feminist project of achieving gender equality. For this purpose, rather than taking enhancements to be interventions that go beyond the norms of what is considered

a standard medical “treatment,” we define them as being any intervention that’s expected to improve individual wellbeing (i.e. the so-called welfarist definition of human enhancement) (see also Savulescu et al., 2011). This is not committed to any single conception of wellbeing—there are multiple viewpoints on what it is that grounds human wellbeing and what its realisers might be. For example, a hedonic view takes wellbeing to consist in positive subjective experiences, or pleasures, such as listening to a favourite piece of music, or spending time with a cherished friend (e.g. Bentham, 1879; Browning, 2020). A preference-satisfaction view takes wellbeing to consist in the satisfaction of one’s own preferences for one’s life—possibly including the subjective pleasures of the hedonist, but also other potential goals and values such as what city to live in, or what career to choose (e.g. Heathwood, 2019). An objective-list or human flourishing account provides a particular list of different aspects of human flourishing—such as friendship, achievement, and knowledge—and takes wellbeing to consist in how well someone fulfils the set of items on this list (e.g. Fletcher, 2013).

We think there is value in preserving a pluralistic attitude about wellbeing (Veit & Browning, 2021). Primarily, we wish to endorse an agent-centred perspective on what is valuable, where enhancement is relative to the interests and goals of an individual, not those of society more broadly. In particular, we would take wellbeing to be enhanced when an individual is empowered to exercise their own agency to more freely choose their own life path. History has shown us the harms that can come from trying to improve someone for a specific role within society, and in particular the types of discrimination and bias (such as racism or ableism) that can underlie such judgements. The agent-centred view does not rely on broad judgements like these. For instance, there would be no blanket ruling about which types of diseases or disabilities may be appropriate targets for enhancement, but rather a measured examination of the cases in which they are taken by an individual to reduce their ability to live the life they want for themselves, or to access the conditions or experiences they think are valuable. Importantly, an agent-relative view will mean that not all enhancements will be equally relevant to all people—what may count as an enhancement to one person, allowing them to increase their wellbeing, may be neutral or even negative to another.

This definition helps work around one potential concern with enhancement technologies, and that’s the choice of which features or traits count as relevant enhancements. This is contentious, and is clearly a point at which different values may be demonstrated, and come into conflict; where there is the potential for harmful or otherwise undesirable values to have an effect on the outcome. In particular, we might see a problematic role for gendered bias in determining what counts as an enhancement, such as a preference for traditionally masculine-coded traits. As with the

“humanist” tradition (European), “Man” could become the *de facto* ideal reference point (Braidotti, 2016, 2022). There is, after all, a long history of distinguishing traits problematically stereotyped as “female”—such as heightened emotionality—as inferior to those of the “rational man” (Lloyd, 1984). Coady (2016) has rightly argued that we need to keep this in mind when assessing enhancement technologies and any possible claims for the prioritisation of masculine-coded traits over the feminine in our attempts to enhance humans. Similarly, we might see the desire for enhancement of traits that fit with socially endorsed “beauty” ideals as one based in problematic gendered values. Here, too, a feminist lens can play a vital role in distinguishing where particular features or traits genuinely and robustly improve individual wellbeing, rather than simply being awarded greater value in current society. As we have mentioned, this is likely to largely rest on what will increase the agency of individual subjects to choose goods for themselves. Once we restrict the term “enhancement” to interventions that provide such conditions for the people who receive them, we are far less likely to fall to the potential continuation of this unfortunate heritage of our gendered history. Indeed, as we shall argue in our section on moral enhancement, the future of enhancement may even involve the “feminisation” of parts of the population and re-evaluation of the value of traditionally feminine-coded traits such as greater empathy, care, and preference for cooperation over competition.

Enhancement from a Feminist Point of View

Once we have broadened our view on inequality from the usual focus on differences in material wealth, a feminist perspective on enhancement technologies can help us to see these new technologies through a more critical and pluralistic lens. In particular, we can examine how new enhancement technologies could worsen existing societal differences and forms of oppression; or how they may instead result in improvements. As the category of enhancement technologies is a heterogeneous one, we cannot hope to provide a general analysis—what is required is a contextual recognition of the diversity of enhancement technologies (Veit et al., 2020). We will thus individuate our discussions and look separately at several different types of enhancement technology, beginning with what is perhaps the most controversial of all: genetic enhancement.

Genetic Enhancement

Ever since the advance of genetic tools such as preimplantation genetic diagnosis (PGD), in vitro fertilisation (IVF), and more recently CRISPR-Cas9 as a cheap and effective gene-editing tool, there has been an explosion

in discussions in bioethics, regarding the possible implications of using these and other similar tools to reshape humans—both individually and as a species. Under the dark shadow of the horrific history of eugenics, it has been crucial for bioethicists to pay attention to the lessons drawn from this time. This includes carefully distinguishing between interventions that should be avoided and those that may be permissible or even morally obligatory, such as those that involve curing genetic conditions that presently cause great suffering (Juengst & Moseley, 2019; Kitcher, 1997; Veit et al., 2021).

As with any such technology, use of genetic enhancement tools has both its proponents and detractors. There are many people—especially those with religious views (Scheufele et al., 2017)—who are sceptical of these technologies, with plenty who take the stance that we should not allow any type of “eugenic” interventions to alter or improve the health, longevity, or psychology of humans. Nevertheless, there are also many in favour of the use of gene-editing tools for human enhancement in some contexts (Agar, 2008; Harris, 2007, 2011; Savulescu, 2009; Veit, 2018c), with some arguing that it could even be used to equalise an unfair playing field and enhance equality (Giubilini & Minerva, 2019). In this section, we will examine this further with a (currently hypothetical) case study illustrating the use of a feminist lens in assessing the bioethics of the use of genetic enhancement technology in treating or preventing endometriosis. In particular, we will look at whether and how the tools and the targets of genetic enhancement could be used to further entrench oppression and inequality, or in some way to help dismantle them.

Endometriosis is a disease in which the endometrial cells that typically grow inside the uterus are found growing elsewhere throughout the abdomen and is often accompanied by a large amount of pain. While this is a disease that can affect anyone with a uterus, its sufferers are most often women, and it is almost certainly because of this that the disease has received very little attention, despite its huge quality of life impact (Gao et al., 2006; Moradi et al., 2014). Bias against and discounting of women’s pain by medical professionals is well-documented (Hoffmann & Tarzian, 2001; Shahvisi, 2019), and endometriosis has a demonstrably delayed diagnosis, often taking many years after patients first present to their doctors (Husby et al., 2003). There are also currently few treatment options, arising from the same reasons of gendered bias in medical research. It is clear that further research, based in the lived experiences of women with the disease, is crucial for providing more treatment options. However, as endometriosis has a strong heritable component (Koninckx et al., 2019; Stefansson et al., 2002; Zondervan et al., 2001), it is also potentially a good candidate for genetic intervention, such as gene-editing. This could then work alongside other kinds of improved treatment options, to allow

women additional agency in deciding for themselves how to treat or prevent the disease in themselves or their children.

To begin with, we can look at the tools of genetic enhancement and how they interact with existing power structures. When considering the option of genetic engineering or selection, the first consideration is reproductive autonomy—can the parent choose whether or not to undergo the procedure, to conceive naturally or to proceed with IVF? A strong concern with genetic enhancement technologies is their potential to be used as a tool for control of women's bodies, reducing or removing their reproductive autonomy. With a long history of coercive reproductive control, this is a crucial feature of the acceptability of such a technology. However, several scholars have noted the absence from most of these discussions of a recognition of the role of women in procreation¹ (Farrell et al., 2019; Simonstein, 2019), arguing that this makes genetic enhancement a gendered issue.

The worry that women could lose their reproductive autonomy, in terms of being deprived of the choice to conceive naturally, is certainly worth taking seriously and protecting against. Even where genetic enhancements are unquestionably a good thing, there should be no obligation or coercion of women to adopt them. Reproductive technologies should instead be used to expand the option space for women, enhancing rather than diminishing their autonomy, so long as the choice is always left open. Indeed, this dovetails with the work of writers such as Shulamith Firestone (2015), who argue that the use of reproductive technologies could actually be a necessary part of liberating women from the demands of childbearing and rearing, and thus allowing them to take an equal footing in society. A person who is given the choice of using genetic enhancement for their offspring to avoid endometriosis is able to exercise additional control over their reproductive choices, even if they choose not to take this option.

The next level at which to consider the acceptability of the practice is the targets for genetic enhancement, and how they are selected. Here we look at the nature of the enhancement itself—the altered genotype or condition of the child who is born using these methods. As discussed earlier, the very selection of genetic traits to intervene on can itself be subject to gendered bias, and should be critically assessed. There is a risk in genetic enhancement is that the modified traits could be those which will themselves further oppressive or unjust structures or institutions. And we must be ever wary of imposing a singular vision of the good life onto those who are yet to come into existence, keeping in mind the risk of ableist perspectives that fail to recognise the diversity of ways of having a good life (see, for instance, discussions on wellbeing in the deaf community; Chapman & Dammeyer, 2017). However, endometriosis seems unlikely to fall into this category. It's not an identity or a community, but a source of suffering and limitations to one's life projects. Returning to our discussion of

enhancement as relative to an agent's own goals and values, for almost any individual the prevention of endometriosis will enhance these. Free from the risk of ongoing pain, an individual has an enhanced ability to live out the life they choose for themselves. A disease that disproportionately harms women should, once removed, instead have a positive influence on gender equality, removing a common barrier to maximising life potential.

Thus, the acceptability or benefits of any particular practice of genetic enhancement will depend on the details of the trait and its impact on an individual's life. There are a range of similar cases of potential enhancements that similarly target diseases and disorders that currently disproportionately affect women, such as fibromyalgia, lupus, and chronic fatigue syndrome. Treating or curing these conditions, whether through the use of genetic enhancement or other technologies, would represent a substantial improvement to the lives of many women who do or could suffer from them. Given the existing inequalities within our society, and the history within medicine of prioritising conditions affecting men, there is therefore a strong rationale for now prioritising conditions like these, where most of the benefits would flow instead to people of other genders (see also Farrell et al., 2019).

What we wish to emphasise here is the careful assessment of the costs and benefits, with attention paid to the ways in which genetic enhancements could serve to strengthen or weaken current structural or social inequalities. Specifically, this requires bringing together a diverse range of voices inclusive of those most likely to be affected and those who have been previously overlooked or marginalised. The most important conclusion to draw here is one we share with Farrell et al. (2019)—that women should play a special role as “prospective subjects, scientists, policymakers, and physicians” alongside other stakeholder roles, and that we can and should give them “priority in making decisions about how potential risks and benefits will be assessed in the name of germline editing technology innovation and progress” (p. 1075) in order to ensure that genetic enhancements will serve the interests of everyone, and not only the dominant groups.

Cognitive Enhancement

Unlike genetic enhancements, cognitive enhancements are already commonly practiced. There are a range of cognitive enhancements that we regularly rely on, including coffee and other stimulants that help us to stay focused and/or improve our moods. This use can often be obscured, however, with the label of “cognitive enhancer” being applied only to novel technologies in such a way that they are artificially distinguished from the existing enculturated practices that have been widely accepted as morally harmless. We want to erase this distinction here, making clear

that cognitive enhancements can span the continuum from a simple cup of morning coffee to extensive alteration of the brain, and that there will not be any one-size-fits-all judgement that can cover all these technologies or practices. Here, we will try to survey some of the key issues they may raise in the context of feminist thought.

Previously, we mentioned that one of the primary objections to enhancement technologies is the inequality objection. We bring this up again here, because the primary target of this objection has been cognitive enhancements, in the sense of their possible use in improving one's mental capacities for the sole sake of becoming a more powerful actor in the marketplace. Particularly where it's likely that access to technologies will disproportionately fall to those who already hold economic and workplace power, there is a concern that existing inequalities will thus become further entrenched. This risks further reinforcement of the current structures of gendered oppression. One way in which this might occur is if women or non-binary people are less positively disposed towards adopting the technologies. After all, it has been robustly demonstrated across a variety of studies, that women are less likely to be supportive of or optimistic about enhancement technologies.² If they are both less willing to use cognitive enhancements that directly improve subjective wellbeing and those enhancements that could do so indirectly by improving the market position of the enhanced, it would not at all be implausible that inequality grows rather than diminishes, even where there is nominally no inequality in access.

Yet, we don't think that a feminist perspective on cognitive enhancers must necessarily be a hostile one. One way to emphasise this is to focus on cases where cognitive enhancers could benefit women and non-binary people more than men; similarly to the argument we made for a focus on genetic enhancements that target diseases that predominately affect women. A similar case has been made arguing that cognitive enhancers in the form of "study drugs" could actually help to offset socioeconomic inequalities that typically harm underprivileged students (Ray, 2016).

We can explore this through the example of the use of medications that serve to treat mood disorders that are more common in women. For instance, Kramer (1993) argues that "there is a sense in which antidepressants are feminist drugs, liberating and empowering" (p. 40); and Hoffman and Hansen (2011) offer two ways by which this might be achieved—helping women become "more confident, competitive, assertive, and resilient" (p. 90) and by helping them escape the bonds of clinical depression. Depression, which greatly decreases one's quality of life and ability to pursue their own goals, is seen more often in women, as well as trans and non-binary people.³ Where mood enhancers can treat and ameliorate the symptoms of depression, they could enable a wider range of people to engage in projects and activities they value. In this manner, Prozac is unlike

previous treatments, such as Valium, that served primarily to numb or subdue (Hoffman & Hansen, 2011). The situation is similar with anxiety disorders, with anxiety medication used more often by women than men.

One may question the very idea that cognitive enhancers such as antidepressants are really “feminist” technologies. The higher incidence of anxiety and depression may not be innate, but rather outcomes of the restrictions of living in a patriarchal society. Here, celebration of mood-enhancing drugs could be seen as hiding the true cause of the problem, thus actually making it more difficult to achieve an equitable society. We consider this a serious problem, however, we contend that recent research has demonstrated that the higher levels of anxiety and depression likely have both biological and cultural causes (Benenson et al., 2021; Grossmann, 2022; Veit & Browning, 2022, 2023). As long as we don’t slip into a strongly monist view where this discrepancy must be explained exclusively by either biological differences or due to experience of societal oppression, we remain convinced that we can continue to criticise unfair social structures while simultaneously giving women and other oppressed gender minorities priority access to cognitive and mood enhancers. Treating the symptoms of a current social or institutional problem should not be seen as endorsement of the structures that give rise to it, but can be a way of helping those affected in the meantime.

Nevertheless, we should still urge caution since the “widespread Prozac use could create a quasi-coercive scenario somewhat analogous to steroid use among athletes, for women seeking to better meet familial and professional obligations” (Hoffman & Hansen, 2011, p. 116); something that may well apply to all cognitive enhancers that could help people to be more efficient in the workplace. Rather than challenging harmful structures or practices, if not used carefully such technologies could instead reinforce them, altering humans to better fill the required roles rather than reimagining the roles themselves. We would not want to endorse a society that would force people to use chemical enhancers, simply to remain competitive. For example, consider the rise of “wakefulness” and so-called “study drugs,” such as *Modafinil*. It is well-established that women perform a disproportionate share of household tasks and caring duties, leaving less time and energy for other kinds of work. Given this, such drugs could be more useful to them, allowing women to stay competitive in education or the workforce while still managing their additional duties. However, we’re sure most would agree that this is a far from ideal solution, as it’s targeting the wrong part of the picture. Rather than maintaining the status quo while providing enhancements to make it easier for women or non-binary people to succeed in a world unfairly biased towards men, it would be far better to examine and address the root causes to level the playing field such that these solutions would no longer even be required.

However, such changes are slow and until they are enacted, enhancement drugs could play a role in providing support for people to better get by within the systems that disadvantage them.

Cognitive enhancements can have a valuable role to play in cases where they allow an individual to overcome limitations of energy, mood, or cognitive processing, that may make it more difficult for them to live the life they want for themselves. For instance, use of Modafinil can be a helpful way for those with chronic fatigue syndrome manage their symptoms and live a more engaged and fulfilling life. This is why we prefer to call something an “enhancement” if and only if it improves the subjective wellbeing of a person, rather than define enhancements in terms of social norms, which may often be to the disadvantage of women and other discriminated groups. Nevertheless, we should pay close attention to the contexts of use and ensure that they are not reinforcing harmful structures and they are not obscuring an alternative preferable solution. A cognitive enhancement drug may improve the subjective wellbeing of an agent who is disadvantaged in society but may have no such effects if society would treat women, men, and non-binary people equally. Enhancements should thus not be seen as opposing other kinds of political or social change, but working alongside. For instance, a single black mother on the poverty line might find that use of enhancement drugs could allow her to pursue further education, or to become competitive enough within her job that she attains a management position at her company. She could then use this position to advocate for changes that make it less likely that other women like herself have to fight so hard to get to where she has. Where enhancement drugs allow disadvantaged people more time and energy to succeed at their chosen projects, this could also give them increased freedom and power to advocate and work for change.

Again, part of the solution is to ensure that the voices of people of all genders, not just male, are included in discussions regarding the cases in which use of cognitive enhancers should be endorsed. Research into future cognitive enhancers could also prioritise those which preferentially benefit people from marginalised groups, offsetting some of the effects of structural oppression and allowing them greater participation in social and political activities. Furthermore, where Bostrom (2003) argues for subsidies for poorer families in order to make enhancements accessible to all, there could be similar initiatives to ensure women and non-binary people have equal or greater access to opportunities to benefit from enhancements.

Moral Enhancement

To end, we will consider moral enhancement, which is another controversial topic in bioethics. Such controversy may seem confusing on its

surface—who would oppose any effort that would result in more widespread moral action? It is for this reason that some bioethicists have argued that moral enhancements should be considered of particular importance when compared against other kinds of enhancements (Persson & Savulescu, 2008, 2013)—after all, they don't just improve the wellbeing of the enhanced individual, but everyone they interact with. Human decision-making is often short-sighted and biased in favour of self-interest. Collective action problems such as climate change, that require individuals to act against their own immediate self-interests for the benefit of others, have been argued by some bioethicists to be best addressed through the use of moral enhancements (Savulescu & Persson, 2012). But while there are reasons to be in favour of moral enhancements, there are also potential problems to consider and address before proceeding with these technologies.

The biggest concern with the use of moral enhancements is the choice of which ethical frameworks and viewpoints are used in deciding which traits are considered as candidates for moral enhancement. Again, there is the concern that entrenched power structures could be further reinforced through use of “moral” traits that support rather than challenge them. From a feminist point of view, this once more calls back to the potential of prioritising masculine-coded traits over the feminine, and those features that might serve to maintain the status quo. As we've discussed, historically within patriarchal societies those traits considered “male” have been valued, whereas traits traditionally seen as “female”—such as empathy, emotionality, and care—have been seen as inferior.⁴ So there has been a legitimate worry that enhancements could be used to make women or non-binary people more like men, or for that manner, shape them according to the preferences of men. It is thus important that any deliberations on moral enhancement make clear what systems of ethics and morality are being considered, and how they might help or hurt in their application. Particularly, the feminist “ethic of care” has arisen out of a recognition that many traditional systems of ethics fail to recognise the importance of the relational nature of moral behaviour and emotions. Once more, we advocate that including oppressed genders in discussions on moral enhancement is a crucial part of ensuring that the enhancements themselves aren't based in a “morality” that sidelines the interests and experiences of anyone other than men.

However, one reason to remain positive on this front is that the moral enhancements currently being recommended by bioethicists are trying to advance feminine- rather than masculine-coded traits. In particular, much of the discussion has related to how we might increase prosocial emotions such as empathy, for example, through the use of oxytocin. Similarly, given the widespread problems of violence and aggression of men against women and non-binary people, with testosterone linked to aggressive

behaviour (Batrinos, 2012), intervention on testosterone may therefore serve to reduce aggression and promote cooperation. Furthermore, Earp (2018) has argued that we be able to use psychedelic neuroenhancements, for which there is evidence that they may enable healing of emotional trauma and again increase empathy. Such interventions could for example target individuals who exhibit violent traits, or those that are predictive of male-gendered crimes such as family annihilation (Yardley et al., 2014), with the aim of preventing such horrific crimes before they occur. While this work is still in its infancy, and there are many more conversations that need to be had to make decisions on the best ways forward, we can see reasons why doing so may be supported by a feminist rationale.

Conclusion and Further Directions

While this has admittedly been a necessarily short overview of a vast range of the potential applications of a feminist lens to enhancement technologies, we hope to have provided a useful introduction to the field and its possibilities. Our goal in this chapter has been to highlight the usefulness of a feminist perspective in debates on enhancement technologies, in illuminating both potential problems and highlighting promising ways forward. Rather than seeing feminism as being opposed to novel technologies—enhancement or otherwise—we can instead explore the ways in which new technologies can function as tools for empowering and improving the lives of women and non-binary people, and dismantling the patriarchal structures that harm them. This fits well with feminist traditions such as xenofeminism, which see technologies as potentially useful tools for transformation of gendered oppression (Cuboniks, 2018; Hester, 2018). Contrary to popular belief, enhancement technologies, if used well, hold the power to decrease existing inequalities and lead to a more egalitarian society. At the most extreme, we could take the picture of Haraway's (2006) revolutionary mythical "cyborg" as a radically enhanced human who breaks free from the confines of traditional biology to reinvent or erase the binaries and boundaries of group membership, and even alter the nature of humanity itself. We should take care to investigate the empirical foundation for claims about potential misuse, balanced against examination of the potential benefits for increasing equality and wellbeing in our society.

It is here that we see a role for a beneficial integration of feminist philosophy and the human enhancement literature. Rather than polar opposites, we have argued that there is no necessary gap between feminist concerns and the arguments for human enhancement. Feminism must not be seen as inherently opposed to advances in enhancement technologies. While it's natural and warranted to exercise caution when it comes to

new enhancement technologies, we should take the opportunity to make use of them to enhance the gender equality in society. It is beyond the scope of this short chapter to make any particular recommendations on policies, regulations, or use of enhancements, as these will be highly context-dependent; however, there are some general procedures we think are important for the consideration and implementation of enhancement technologies. As we've highlighted throughout, careful use of enhancement technologies should include investigation of the values underlying choice of enhancements with a particular focus on where there is a real benefit to agent-centred wellbeing as opposed to maintaining the socially proscribed status quo, provision of choice and control to those seeking or receiving such treatments, and perhaps most importantly, the inclusion of a diversity of voices in discussions regarding the development and use of enhancement technologies to ensure gender equality. If used well, enhancement technologies have the potential to improve the lives of everyone and even to assist in dismantling oppressive patriarchal structures, allowing for a more equal and more just society.

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Notes

- 1 We recognise that it is not all or only women who play this reproductive role, but as we take many of the issues with recognition and regulation of these technologies to be related to their typical association with women, for the purposes of this discussion we will limit ourselves to this context.
- 2 See Napolitano and Ogunseitan, 1999; Hampel et al., 2000; Evans et al., 2005; Barnett et al., 2007; Meisenberg, 2009; Črne-Hladnik et al., 2009; Hudson and Orviska, 2011; Črne-Hladnik et al., 2012; Criger and Fekken, 2013; Xi-ang et al., 2015; McCaughey et al., 2016; Hendriks et al., 2018; Delhove et al., 2020.
- 3 Note, however, that this may not be due to a higher incidence, but could also result from underreporting of depression symptoms in men (see Hunt et al., 2003) or overdiagnosis in women by medical professionals (Floyd, 1997).
- 4 Note that we agree with scholarship that suggests there are not strong gendered differences in possession of these traits (Fine, 2005), here we simply mean to emphasise that these traits have traditionally been viewed as feminine and masculine and judged accordingly.

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