Ethical Principles for Design

Becker, Christian U.
Colorado State University, Fort Collins, USA
chris.becker@colostate.edu

The paper explores ethical aspects of design from the perspective of normative ethics. It develops a set of normative principles for design against the theoretical backdrop of moral philosophy and the specific characteristics of design as a creative and function-oriented field. The paper provides a systematic ethical approach and critically reflects on the ethical underpinnings of prominent design approaches, such as user-centred design, green and sustainability design, and design addressing societal issues. It specifically focuses on the role of design with regard to ethical challenges of the 21st century, such as sustainability and globalization, and proposes a reconstruction of professional responsibilities for functionality and creativity in this context. The paper particularly promotes normative principles for design that foster creative potential in humans and nature, sustainable development, and positive societal and intercultural relationships.

Keywords: Design ethics; normative perspectives; principles; sustainability; creativity

1 Introduction

This paper explores potential ethical principles for design from the perspective of normative ethics. Normative ethics is a philosophical field that aims to justify norms and values by rational argumentation. At the core of the paper is the question of what ethically good design is. This is a crucial question that has been addressed and answered in various theoretical reflections and design manifestos. Influential normative conceptions include user-centered design (Norman & Draper 1986; Norman 1988), green and sustainability design (Graedel & Allenby 2010; McDonough & Braungart 2002), design promoting societal values and individual rights (see e.g., Talen & Lee 2018; Keates & Clarkson 2004) and design respecting cultural values. The paper reflects on a range of normative guidelines for design and their justifications. It aims to determine a set of normative principles for design that specifically meet major challenges of the 21st century, such as sustainability and globalization. The paper develops its conception of design ethics against the theoretical backdrop of moral philosophy, and considers specific ethical implications that follow from the definition of design as a creative and function-oriented field.

Applied ethics generally needs to consider ethical criteria as they relate to the specific characteristics of the field of action in question, in this case, design. What matters ethically for designers may differ to some extent from general ethical requirements that hold for everyone, and may also differ from ethical aspects of other professional fields, such as health care or education. Thus, a careful determination of the specific characteristic and
ethical aspects of design is a crucial prerequisite for any systematic conception of design ethics.

The paper develops an ethics of design against the backdrop of three basic characteristics of design. First, the paper defines and understands design as creativity operating on function, that is, as creative expression of a specific function into a concrete form. With this, design is a combination of creativity and functional rationality and, in many cases, a synthesis of art and technology. This definition of design includes a broad range of fields, such as fashion, architecture, software, IT, various fields of engineering, and crafts. By this definition, design is distinguished from art. Art is a free expression of creativity that is not bound to any specific functionality or use. Design is creativity operating on, or dealing with, functionality. As soon as design completely ignores or annihilates functionality, it is no longer design, but potentially art. For instance, fashion design is highly creative, but even the most ingenious fashion design still fulfils the function of being worn on the body. If some design cannot possibly be worn, it is not fashion anymore, but it might be considered artwork. Likewise, one can design chairs in endless ways and forms. Yet to count as design of a chair, the design must uphold the function of a chair by enabling people to sit on it. If the design disallows sitting, the function is lost, and the design is potentially artwork representing, or reflecting on, the concept of a chair.

Second, the paper assumes that design typically serves and supports a certain practical purpose. Fashion serves the practical purpose of covering the body, chairs serve the purpose of sitting down, software is designed for specific purposes, and so on. In this perspective, design is, in the broadest sense, part of the realm of modern technology. Technical objects are instruments for practical purposes, they are means to pursue given tasks. Technology usually increases efficiency and comfort, and more broadly, is meant to improve human conditions on earth (Bacon 1863; Becker 2012). Technology is useful and has an instrumental value for people. With this, design is not only part of technology but at the same time part of modern business and the economy. Design provides, or contributes to, goods that are practically useful and valuable to people and, in virtue of this, is part of the overall economic realm of production, distribution, consumption, and disposal.

Third, the paper considers that design, because it is realized in objects that enter into individual lives and societal and environmental contexts, has intended and unintended effects to individuals, societies, the global community, the environment, and future generations. This involves crucial aggregate effects and resulting issues, such as the tendency of current technological and economic systems to overburden the carrying capacity of the earth and negatively impact the well-being of future generations and people around the world (MEA 2005; UNEP 2012; Becker 2012). The paper argues that modern design operates in the realm of technological and economic systems and, because of this, has a specific function with regard to new ethical challenges and specific responsibilities. Design needs to consider its role within modern technological and economic systems and their impacts on future people, people around the world, and nature.

Against the backdrop of the specific characteristics of design outlined above, design ethics needs to consider and combine three fundamental elements: first, ethical principles for design that follow from general moral philosophy; second, ethical implications that follow from the specific characteristics of design as a creative, function-based and use-oriented
field; third, the responsibilities of design in meeting crucial ethical challenges of sustainability and global relationships.

The remainder of the paper is organized as follows. Section 2 outlines basic ethical principles for design that follow from moral philosophy and discusses implications from those principles for the field of design. Section 3 determines specific ethical principles for design that follow from the characteristics of design as creative, function-based field. Section 4 defines principles for design that address main challenges of the 21st century, namely, sustainability and the promotion of positive global and intercultural relations. Section 5 provides a short conclusion.

2 Basic ethical principles for design
Moral philosophy has been studying conceptions of the right and the good for over 2000 years. Although there is no definite definition of the right and the good, moral philosophy has developed some pretty good approaches and criteria for addressing ethical issues. This section refers to three main approaches of moral philosophy to develop basic principles for design: utilitarianism, Kantian ethics, and virtue ethics. These three approaches represent typical ways of ethical reflection and argumentation: argument by consequence, by principle, and by character (Becker 2019). They also represent the main theories used in normative (applied) ethics today. I will outline each theory and its implications for design in the following.

2.1 Utilitarian principle
Utilitarianism is an ethical theory that refers to the consequences of actions. It considers each person affected by an action, and the way in which everyone is affected. Utilitarianism considers whether an action increases or decreases happiness. Happiness is measured in terms of pain and pleasure (harm and benefit) that the action inflicts to each person affected. What matters for the ethical evaluation of an action is the overall outcome in terms of happiness: How much overall happiness does an action produce if one considers and summarizes harms and benefits to all affected by it? Comparing a given set of alternative actions, utilitarianism considers the action that maximizes overall happiness of all affected as the ethically best action. In other words, an action is ethically better than its alternatives if it produces more overall happiness that its alternatives (Bentham 1988; Mill 1998). Based on utilitarianism, one can formulate the following basic ethical principle for design:

Utilitarian principle: Design should promote the overall happiness of all affected by it

2.2 Kantian principle
Kantian ethics, the ethical approach developed by the German philosopher Immanuel Kant (1724-1804), provides an ethical argument by principle. In contrast to utilitarianism, Kant argues that the ethically right action is defined by the right motivation rather than by its consequences (Kant 1998: 8). The right motivation is established by reason, which identifies fundamental ethical principles. At the core of Kantian ethics is the Categorical Imperative which states that one should only act according to principles which one could reasonably want everyone in the world to adopt and follow (Kant 1998: 31). In the context of this paper, I refer to another formulation of the Categorical Imperative that emphasizes the unconditional value of every human being as ends in themselves: “So act that you [treat] humanity, whether in your own person or in the person of any other, always at the same time as an end, never merely as a means” (ibid.: 38). In other words, no one should be treated as a mere object, but everyone should be respected as being endowed with reason and an end in
unethical. The effects are equal to the user, would be considered unethical or financial pain to the user. Obviously, a design should consider the perspective of users. Referring to above ethical principles, one can formulate potential ethical underpinnings for the conception of user-centered design.

The utilitarian perspective would consider the pleasure or pain a design inflicts on its users. A design should enable a user to perform some given function. If a design was counterintuitive, flimsy, inefficient, unpleasant, or unsafe, it could cause emotional, physical, or financial pain to the user. Obviously, any alternative design that is more intuitive, solid, efficient, aesthetically appealing, or safe and, as a result, less painful and more pleasurable to the user, would be considered ethically better in a utilitarian perspective, given all other effects are equal. From a Kantian perspective, one would perceive any design that ignores the rights of users, or considers users as mere means or objects, as disrespectful and unethical. Design should be user-centered in the sense that the designer always considers
the users as ends in themselves and as beings endowed with reason, and never as mere means to achieve some further ends, for instance, technological or economic ends.

The user-centered approach is insightful but results in an overall limited ethical perspective. It leaves out many ethical questions about the role of design for societies, the world, nature, and future generations. A designer does not only have moral obligations to the users of her design. Design plays a crucial role within an entire society and its complex interrelations, and the designer also has responsibilities for the overall societal impacts of her design. A societal perspective would develop a more differentiated perspective on the societal role of design. It would consider (i) the various stakeholders to which the design matters, (ii) societal challenges, issues, power structures, and group dynamics, and (iii) specific ethically relevant topics, such as social justice, diversity and inclusion, racism, gender and age discrimination. A design that is attentive to, and considers, all three aspects can be called socially responsible design.

The relevance of a broader societal perspective on the ethical responsibilities of design can be easily seen with some examples. The design of a car should certainly be user-centered. It should consider the right of the user to her own safety and respect users’ preferences for reliability, efficiency, intuitive use, and comfort. However, cars also have ethically relevant impacts on others. For instance, not only does the user of the car have a right to safety, but so do all other road users. Socially responsible design would aim to contribute to the overall safety of cars for the user and other road users, for instance, pedestrians. There are design solutions that design the bumper and front part of cars in ways that reduce risks of injuries for pedestrians in case of an accident. Recently, new design solutions help to automatically detect and prevent collisions, which benefits both the driver and other road users. Future design of self-driving cars has the potential to further consider the safety of all road users in a significant way. Socially responsible design would consider the impacts of a design to all stakeholders and aim to create a win-win for all.

Socially responsible design would also consider general societal issues and fundamental values and rights. Design has a specific role and specific responsibilities with regard to societal issues. Design that is unaware of societal issues might unconsciously contribute to them. For instance, gender patterns could find their way into design and be reinforced by it. Examples for gender bias in design are, for instance, car safety features based on average size and weight of men, design of consumer goods and drugs based on average male bodies (Criado-Perez 2019), and information and communication technology based on male preferences (Oudshoorn et al. 2004). Such design is discriminatory, perpetuates gender roles and power structures, and is potentially harmful to women. Similarly, design can unconsciously contribute to age discrimination, for instance, when the design of an object makes it hard to use for elderly people. Design can also discriminate against people with disabilities, for instance, when a building design is not accessible. Socially responsible design should be attentive to such biases and avoid design that contributes to discrimination. Ideally, socially responsible design actively addresses issues such as social justice, discrimination, and racism, and actively supports fundamental values and norms, such as human rights, freedom, equality, diversity and inclusion, and respect. Design has its own means and powers to promote such values. As designed objects enter society and are often used by a large variety of persons and in various contexts, they can unfold powerful messages. In some instances, design may even be able to assume ethical leadership and provoke rather than please the users and established stakeholders. Provocation can be a
justified means to uncover injustice and ethical flaws in society and design, and to promote ethical values.

The impacts discussed so far are more based on traditional ethical perspectives that focus on ethical aspects within well-defined societal contexts. However, design also impacts people around the world, nature, and future generations. Such impacts have become more relevant in recent years as concerns about sustainability have become more pressing in the 21st century. We will discuss further this topic and resulting implications for design ethics in Section 4.

3 Specific ethical principles for design

Section 2 defined and interpreted ethical principles for design that have been deduced from moral philosophy. This section deduces specific ethical principles for design that follow from the characteristics of design as a distinguished field of practice. Although there is some overlap with the basic ethical principles and their implications, the perspective in this section is more directly concerned with specific professional responsibilities of the designer.

3.1 Functionality

As outlined in the introduction, design can be defined as creativity operating on function and contributing to the realms of technological means and economic usefulness. By this definition, designers have a professional responsibility for functionality. Considerations of further criteria, such as aesthetics and cost efficiency, should not result in compromising, undermining, ignoring, or even destroying functionality. As a professional, the designer needs to consider and support functionality. If he only cares about aesthetic aspects, he might be a better artist than designer, if he only cares about efficiency, he might be a better economist than designer.

*Principle of responsibility for functionality: design should consider and support functionality*

The professional responsibility of the designer for functionality can be interpreted in different ways. One can interpret it as the responsibility to actively support functionality in the best way possible. In this perspective, the designer would not compromise functionality by aesthetic or other criteria. Functionality would be the leading criterion for design. This is in line with the well-known design paradigm ‘form follows function’. However, the designer is often faced with conflicts between functionality, aesthetics, and efficiency and may need to balance various requirements for the design. Even if functionality would be considered the leading criterion, the designer might still want to strive for ways to create a win-win by finding a design solution that simultaneously optimizes aesthetics, functionality, and efficiency.

One can also interpret the designer’s professional responsibility for functionality in a more limited way: as the responsibility to not compromise functionality by other criteria for design in ways that make the design potentially harmful for users or others. In this perspective, the responsibility for functionality is limited: the designer just has to make sure that the design is safe to use. This correlates with general ethical principles outlined in Section 3. However, it is worth to define safety separately as professional responsibility of the designer, because this principle follows from the core function of design to consider and uphold functionality:

*Principle of safety and care: design should prevent harm by the designed object*
3.2 Creativity
The third professional responsibility that follows from the definition of design as creativity operating on function, is responsibility for creativity:

*Principle of creativity: Design should promote creativity*

This principle requires some explanation and interpretation, as it may not be obvious what responsibility for creativity means and why creativity involves ethical aspects of design. Creativity is at the core of the definition of design, as is functionality. One can argue that creativity is not subordinate to functionality, a mere servant to function, but has equal status and value within the context of design. Even approaches that prioritize functionality may still recognize creativity as an essential element of design that has its own status and value in design.

Creativity can be considered as having ethical quality, in so far as it is crucial for human flourishing and excellence. Creativity, understood as power to bring forth new ideas and things, is part of the human condition. Humans are creative beings, as they are rational beings and beings capable of ethical judgments. Humans create artwork, music, invent new technologies, and so on. Creativity is part of the potential human beings have and part of human flourishing and a good society. Creativity, aesthetics, and beauty, enhance human lives and societies, provide inspiration and meaning, represent unique ways of reflection on human existence, society, and the world, and have the potential to connect people and cultures and make the world a better place. Against this backdrop, one can argue that designers, similar to artists, have a professional obligation to promote creativity and its positive potentials for individual lives, communities, societies, and cultural relationships, because creativity is a defining core function of their professional work.

Creativity today is even of further ethical relevance and has a new quality of importance in design ethics. We will further elaborate the relevance of the principle of creativity with regard to the challenges of the 21st century at the end of the following Section 4.

4 Ethical principles for design in the 21st century
Design needs to consider the (ethical) challenges the world is facing in the 21st century and implications of these challenges for modern design. This section discusses ethical principles for design in the 21st century with regard to two major challenges: globalization and sustainability.

4.1 4.1 Globalization
The world today is more globally interconnected than ever before in history. The economic system is essentially a global system with complex, heavily interconnected production, distribution, consumption, and disposal mechanisms. Internet, media, and social media are global systems that enable large and fast-flowing communication and information around the world. Modern design is challenged by globalization in various ways. Design has impacts around the world, as designed objects are often produced, distributed, used, and disposed globally. Design should carefully reflect on, and consider, its impacts and resulting ethical implications. Furthermore, operating within the context of various cultures can be a source of inspiration and positive interrelationships, but it also poses challenges of adequately respecting cultural values and differences. Within the modern global context, design should develop a global perspective, recognize its responsibilities for the effects of design in a
global world, and strive to assume a positive role in enhancing global, intercultural relationships:

**Principle of enhancement: Design should strive for a positive impact to the world**

Design should specifically promote respect for cultures. This includes the awareness of potentially offensive design and cultural appropriation. Design should use its powers to promote positive intercultural and global relationships. Design, similar to other creative endeavours, such as art and music, has the potential to easily overcome language and cultural barriers and connect people. Design can foster participatory relationships and inclusive design practices, and promote human rights and fundamental values on the global scale.

4.2 Sustainability

In addition to developing cultural and global awareness, modern design also needs to consider environmental and future impacts. The sustainability perspective integrates a global perspective with an environmental and long-term perspective (Becker 2012). Design operates in the realm of modern technology and the economy, which both have significant side-effects not only to people around the world but also to the environment and future generations. From an ethical point of view, and referring to the ethical approaches introduced in Section 2, one can argue that all people around the world and all future people have the same right to not be harmed, to be respected in their dignity, and to have equal opportunities for flourishing and developing their potentials. Furthermore, one can also argue that non-human beings have rights to not be harmed but to flourish, and that life and nature are values in themselves which need to be respected and cared for. The approach of sustainability ethics promotes such an overall integrated ethical view on the rights of contemporaries, future generations and nature, as well as the resulting responsibilities of today’s actors (Becker 2012). Design should carefully consider its own role and responsibilities within the sustainability context and use its own means to avoid global, environmental, and future harm, and contribute to a sustainable future:

**Principle of sustainability: design should promote sustainability**

Design can play an important role for sustainability. In some areas, design may even be a key function for sustainability. In many cases, design significantly determines the overall environmental and global impacts of the product. For instance, fashion design can consider the fibres used in the design and what fibres have the best ecological footprint and avoid harm to people around the world. It is well known, for instance, that the sourcing of cotton is rather harmful to the environment and people (WWF 1999), and fashion design might consider using alternative fibres in order to promote sustainability. In industrial design and engineering, the potential of design to influence sustainability is also significant. For instance, the design of a smartphone largely determines its ethical and ecological footprint. Earlier designs included lead, mercury, and other toxic materials which are environmentally damaging when the phones are disposed (Grossman 2006). Newer designs usually avoid using these substances. Design can also influence to what extent, and at what costs, a product such as a smartphone can be recycled (Graedel & Allenby 2010). If design already considers efficient automated deconstruction of a product and the possibility to retain valuable materials from it, recycling becomes technologically and economically viable. If design enables recycling, this also has significant effects on the sourcing of raw materials.
Materials that can be regained through recycling do not need to be bought as raw materials, and as a result, do not need to be extracted. In a world of limited resources, this would be beneficial to future generations (Graedel & Allenby 2010; Mc Donough & Braungart 2002). Also, many extraction processes are environmentally damaging. In some cases, for instance, with regard to conflict minerals, extraction also involves human rights violations and other unethical practices (Enough 2009). Recently, the electronic and other industries are moving toward closed-loop processes that aim to regain materials from their old products for producing new ones. With this, closed-loop processes result in a double dividend: they reduce waste and extraction of new materials. Design has a key function in this development (Graedel & Allenby 2010).

If design specifically aims at improving the ecological footprint of products or processes, it can be called green design. Design that simultaneously considers its impact on the environment, future generations, and people around the world, can be called sustainability design. Sustainability design intentionally considers the implications of the designed object for (i) the environment, (ii) global and intercultural relations, and (iii) future generations by either minimizing its overall harm to all these entities, or by aiming at an overall positive contribution to them.

4.3 Promoting creativity in the 21st century

As outlined in Section 3, creativity is a core element of design, and designers have a professional responsibility to promote creativity. Creativity is valuable and should be promoted because it is essential to the human condition and human flourishing. However, one can further argue that creativity has value and importance even beyond the realm of humankind. Creativity can also be found in nature. Nature is in fact an original creative power that brings forth endless new forms of life and species through evolution. Nature can also be perceived as creative with regard to the many ways in which organisms have developed highly specific features to adopt to their environments. Against this backdrop, creativity fundamentally connects humans and nature and provides a common ground for both. Creativity can be considered as fundamental to human existence and existence in general (Heidegger 1977). Human creativity is not absolute but operates in the broader realm of creativity in the world (ibid.). Human creativity can be destructive or constructive. Creativity is constructive if it enhances human lives and relationships between people, promotes values, understands its role within nature’s creativity, and is realized as a positive force in the world. Creativity can be a positive force if it is perceived as a co-creative power, working with nature and not against it, working with others and for other generations and not against them.

Design has specific abilities and responsibilities to promote creativity as a value and a positive force in the world, and to promote co-creation with nature. In contrast to art, design has the potential to reach more people, and its objects have a direct relevance for, and impact toward, nature, humans, and their interrelations.

Principle of creativity (extended version): Design should promote the potential of human and nature’s creativity in the world

Design can promote creativity as a positive force and means to relate humans and nature in various ways. Design can, for instance, refer to nature for inspiration and celebrate nature’s creativity in designed objects. Design can be inspired by aesthetic aspects found in nature or by nature’s functionality. The latter is sometimes called biomimicry (Benyus 1997).
Examples for biomimicry would be the design of swim suits that mimic the microstructure of shark skin. The surfaces of the suits are characterized by very small overlapping shingles which reduce friction compared to classical smooth surfaces and enable swimmers to swim significantly faster. Other examples of nature’s ‘design’ inspiring human design are the stickiness of the feet of geckos, the strength and elasticity of spider silk, the bio-chemical reaction of photosynthesis in leaves, or closed-loop processes in ecosystems (ibid). Design that is inspired by such natural features is to some extent attentive to and promoting the creativity of nature. However, mimicking nature will not by itself protect nature and nature’s creative potentials. For this, design must also be sustainability design and actually care about the preservation of ecosystems and biodiversity as the basis for nature’s creative powers. The principle of creativity would only be fully realized if design comprehensively cares about the creative potentials of both humans and nature. Ideally design would perceive its own creativity as part of, and a contribution to, nature’s creativity and aim to promote both.

5 Conclusion
Ethical principles for design encompass responsibilities for users, stakeholders, society, nature and future generations (Table 1). With regard to the challenges of the 21st century, modern design should specifically consider its responsibilities toward people around the world, future generations, and nature, and develop conceptions of sustainability design. This specifically implies reconsidering design’s professional responsibilities for functionality and creativity within the broader context of sustainability and globalization.

In a world that is facing crucial challenges of sustainability and global relationships, design could have a positive impact and play an important role. The positive powers of creativity in human and nature are threatened in a world dominated by economic and technological perspectives and narratives. Humans are creative beings and their creative potentials, if properly understood, guided and used, can connect humans across cultures and times in a positive way, and reframe the human-nature relationship as a respectful relationship of co-creativity. Design has specific responsibilities and potentials for promoting the positive potentials of creativity. Design is prevalent and accessible for people around the world, as it is embedded into many technological and economic objects of everyday use. From within the very systems that threaten the environment and future and produce abstract tacit global relationships, design can reach people with positive messages of creativity and promote sustainability and fruitful global relations.

Table 1: Ethical principles for design

<table>
<thead>
<tr>
<th>Ethical principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilitarian principle</td>
<td>Design should promote the overall happiness of all affected by it</td>
</tr>
<tr>
<td>Kantian principle</td>
<td>Design should promote respect for the dignity of each human being</td>
</tr>
<tr>
<td>Virtue principle</td>
<td>Design should promote human excellence and flourishing</td>
</tr>
<tr>
<td>Principle of functionality</td>
<td>Design should consider and support functionality</td>
</tr>
<tr>
<td>Principle of safety and care</td>
<td>Design should prevent harm by the designed object</td>
</tr>
<tr>
<td>Principle of enhancement</td>
<td>Design should strive for a positive impact to the world</td>
</tr>
<tr>
<td>Principle of sustainability</td>
<td>Design should promote sustainability</td>
</tr>
<tr>
<td>Principle of creativity</td>
<td>Design should promote human and nature’s creativity</td>
</tr>
</tbody>
</table>
6 References


About the Author:

Christian U. Becker is Senior Clinical Professor at Colorado State University. His research interests include various areas of theoretical and applied ethics. Dr Becker is the author of *Sustainability Ethics and Sustainability Research* (Springer, 2012) and *Business Ethics. Methods and Application* (Routledge, 2019).