ETHICS OF INTERACTION DESIGN:
A COMPREHENSIVE RESEARCH ON HOW INTERACTION DESIGNERS CAN AND SHOULD BE MORE ETHICAL

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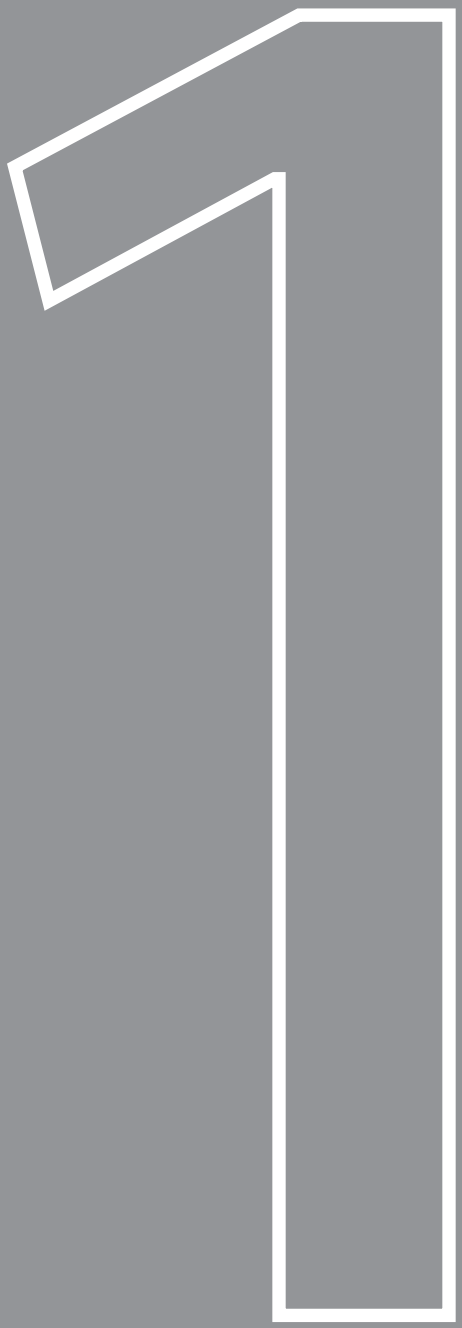
Güney Güner
Graz, 31.08.2022

Contents

ABSTRACT

Designers are capable of so much; many successful companies rely on their work, so many people get help, find entertainment, seek jobs, and get their issues fixed through what designers do. Designers are here to find solutions to the world's and the people's problems. However, our world's most significant issues might be coming from those same hands. Designers are used to moral obligations. Still, design without additional ethical questioning should not exist. It is prone to being or becoming a harm to the people, society, and the environment that it is supposed to serve. This research aims to tackle this problem and explore how design and ethics are closely tied together and how interaction designers can be more ethical in their practice. Existing research on this topic includes research on different stages of design and how the design process can become more sequential following ethical dilemmas, how different teaching and hiring methods can be implemented to obtain a more ethics-oriented market, what pushes designers to make unethical decisions, and different templates and methodologies for pursuing a moral code for design. This research would directly align with the existing state of research; it would explore what ethics means and how it relates to design, how designers are taught, and how they work, and it would go deeper into how the design process can get better with ethical practice. The area of interaction design will be extensively explored with more up-to-date data and research since it is an evolving matter. Literature analysis will be the main source. Understanding how design and ethics are connected plays a crucial role in tackling this issue and establishing that this connection is there and dire. Different types of examples from the industry, establishing a spectrum of what makes certain design decisions unethical, will be shown. As a result, this research goals to establish a profound connection between the material topic of design and the abstract topic of ethics and to prove that ethics is an area that designers need to focus on more. Critical ethical consideration is the point every design should start from. As an outcome, a guideline will be constituted from all the research findings.



INTRO DUCTION

1 Introduction

"The designer is in a position where difficult moral and ethical choices have to be made. And there are many different ways of dealing with this ethical dilemma."

(Papanek, 1985, p. 38)

Design plays a significant role in today's society. As it is explicitly practical, its implicit social functions can not be disregarded (Grant & Fox, 1992). With the introduction of participatory design, design disciplines such as interaction design, experience design, and service design changed the way we perceive the contributions of design to society (Carlsson, 2011). Through this approach, it can be said that user-centered design has earned a new meaning. This social and technological shift that increased the involvement of designers in broader, more complex scenarios and situations has expanded the ethical aspect of the design practice. Hence, in our current society, the responsibility of designers as decision makers is a factor that constitutes the integrity and morality of the design profession.

This thesis focuses on the shortcomings of the design practice, especially the interaction design field when it comes to ethical dilemmas and social positioning. Writing this thesis, the author aims to explore the role of ethics in design and how it affects decision-making throughout the industry. The political nature of the design profession will be questioned, and the role designers play in influencing and shaping products, the environment, society, and human lives will be evaluated. The ethical theory will be explored, and the interaction design field will be assessed in search of points of intersection. The status quo of the literature and the industry in this aspect will be provided with the help of "good" and "bad" examples. Moreover, the primary triggers of unethical decision-making in design are to be questioned. The choices facing designers are mainly economic and financially motivated, and this certainly has an effect on the decisions being made (Papanek, 1985; Monteiro, 2019).

The demand for designers is rapidly increasing with the growing technological advancements, competition, and economy in modern industrial societies. There are way more design-related job titles than ten years ago, and it is a growing industry. Companies and employers are understanding the value of design to be the key in the competitive market environment. Especially with the evolving and growing technologies, the demand for designers specialized in computer-human interactions, interfaces, and human-centered experiences is increasing every year. According to the U.S. Bureau of Labor Statistics (BLS), the field of interaction design falls under the listing of industrial designers, and BLS reports that industrial designers will see a 6% job increase from 2020 to 2030. CNN Money (2017) predicts the growth in demand for user interface (UI) designers to be 27% and for user experience (UX) designers to be 13% in the ten years starting from 2017. Moreover, InVision (2019, p. 6) has conducted a survey amongst product designers, design students, and design recruiters in seven countries (United States, United Kingdom, Canada, Germany, Australia, Singapore, and New Zealand). According to this survey, demand for UI/UX designers comes on top among all the other product design jobs. Also, 81%

of respondents said they are being contacted by recruiters monthly, while 34% said they are being contacted a few times a month. This data shows how designers, especially product designers, are in high demand.

Undeniably design is a field that meddles with ethical and moral situations. As Anke van Gorp (2007) states, decisions that designers make shape the possibilities and risks of products, and some decisions can influence the safety of the user; hence, these decisions are ethically relevant. Although it is a vastly populated industry and design education is taught in many different forms and languages, it is hard to find some moral code or guideline that one can consciously rely on as a designer. After all, attention to ethical issues in design processes is relatively new and emerging (van Gorp, 2007). Likewise, areas like product design, interaction design, and UI/UX design are relatively new fields growing in demand, as stated before; therefore, the meeting point of interaction design and ethics is considerably vague. This situation results in the issue of designers not learning about ethics throughout their studies and, in most cases, not considering ethical practice.

Some relevant studies suggest that the creation of design requirements or guidelines should not be up to designers themselves (Florman, 1983). Florman writes that these requirements are ethically relevant, but the decision-making is up to the employers, customers, lawmakers, etc. This approach tells designers to follow requirements set by others to devise a specific solution to a problem, a task that would be seen under these circumstances as ethically neutral. However, with such an approach, we would be disregarding the human factor and would be treating designers as skilled, non-questioning problem solvers. As Monterio (2019) argues in his book, designers are as ethically responsible as doctors. They should not provide their professional services to demands that ask them to use their skills unethically. Moreover, by nature, design problems do not have a readily particular set of requirements (van Gorp, 2007), or as Simon (1973) argues, they are ill-structured problems. Ill-struc-

tured problems require the establishment of a certain structure, and in this structure, there can be several different solutions to a design problem. This phenomenon necessitates designers to make conscious decisions throughout their design process, which makes their work ethically and morally relevant.

As Jacob Nielsen puts it *"(…) if you have to ask yourself is this really ethical, it probably is not."* (NNgroup, 2021, 3:16)

1.1 Objectives and Research Questions

This thesis can be defined as an epistemological study; the goal is to acquire as much knowledge as possible and use that knowledge to derive conclusions. The hypothesis of this research is that design by nature should be ethical, and all the elements that are keeping it from being that should be changed or eliminated. Through this thesis, the author would like to raise awareness that this is a topic that often gets disregarded but instead should have the utmost attention. The aim would be to create a meaningful medium that can be interpreted as a basis for ethical practice in the interaction design discipline and to construct an informative guidebook for the reader and future research. To achieve this, the author will create a guideline from the research findings in the discussion section. The research questions that will guide this research are presented below:

- How design and ethics are related to one another?
- How do ethical situations present themselves within interaction design, and how does this affect our lives?
- When we take into account the current systemic and social constraints, what methodologies can be constructed to make an interaction designer a better decision maker when it comes to ethical dilemmas?

ETHICS

2 Ethics

Ethics is a broad field with countless different perspectives and theories. As Caro del Castillo (2015) argues, it has been the main pillar and a central discussion point in human societies from the beginning of rational thinking. In Ancient Greece, the philosophers of ethics worked to define and explain human conduct and behavior. The foundational ideas of western philosophy were developed by thinkers like Aristotle, Plato, and Socrates. Furthermore, more recently, Immanuel Kant suggested and examined the rightness and wrongness of human behavior.

Due to its relative nature, the field of ethics can be subjective. In this thesis, to make it easy to understand and work with, the terms ethics and moral are treated as equal. They are considered essential as the responsibility that the designers hold towards themselves, others, and the environment. This chapter aims to briefly explain what ethics theories will be discussed throughout the thesis.

2.1 Normative Ethics

In this thesis, the branch of ethics called normative ethics will be used. Normativity is the notion that describes being evaluated within a set of standards. Ethics is a section of philosophy that deals mainly with the questions: What should be done in order to be good? What considerations make one's actions right or wrong? (Driver, 2007) Furthermore, in normative ethics, these questions revolve around the term "moral oughts." What a person should or should not do according to the set standards of their society and culture (Kaplan, 2022a).

In her book Ethics: The Fundamentals (2007), Julia Driver writes that it is up to normative ethical theories to define what we ought to do or how we ought to behave because the primary purpose of moral theories is to offer moral advice and moral evaluation of moral conduct. Driver also stresses that law and normative ethics are two separate concepts. Examples include laws allowing slavery, prohibiting women from voting, and legalizing child labor, all of which permitted certain people to profit unfairly at the expense of others or prevented everyone from having a voice.

2.1.1 Acts

Carlsson (2011) also summarises some important ethics concepts mentioned in Driver's (2007) book. These concepts are actions defined by the normative ethical theory. Morality defines if a behavior is right or wrong, but it is not simple to define every behavior in a binary nature. Therefore branching can be examined when it comes to definitions of right and wrong actions.

- **Morally right**

    a. Obligatory acts: These are acts that one is morally forbidden not to do. For example, it is morally expected of everyone to look after their children

b. Neutral acts: These are the actions that are morally permissible, which means that they are allowed but not required. The most common example is changing your daily apple with an orange.

c. Supererogatory acts: These acts can be defined as heroic or praiseworthy actions. One is not obligated to do them, but it is a good deed like donating money to a charity or risking your own life to save someone.

- **Morally wrong**

a. Forbidden acts: The acts that one is prohibited from doing. Morally impermissible actions like murder or lying. These actions can also be legally prohibited in some cases.

b. Suberogatory acts: These actions can be considered morally wrong, but they are not prohibited. The best example is not giving up your seat to a senior citizen on public transit. You are not morally obliged to do so, but it is the right thing to do.

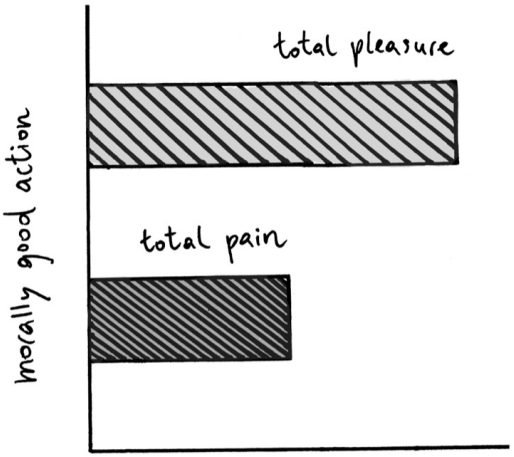
The relation of these acts to the field of design will be discussed in Chapter 6 extensively.

2.2 Results of Your Action

This chapter takes on the side of ethics, which focuses on the results of one's actions to determine the morality of the situation. The outcome of one's actions plays the most significant role, regardless of the action. This method of thinking is called consequentialism; as the name suggests, it relies solely on the consequences.

2.2.1 Utilitarianism

Utilitarianism is a consequentialist theory that Jeremy Bentham founded; it suggests that when deciding on if an action is morally good or bad, we should look at the greatest total pleasure minus the greatest total pain. If the pleasure is greater than the pain, we can say the act was morally good (Kaplan, 2022a). Utilitarians consider not only the effects on oneself but also on all sentient beings. Utilitarians also hold that if an action results in no benefit, it should be disapproved of. From a utilitarian perspective, we should maximize value and support the act that results in the most overall pleasure (Driver, 2007).



This way of thinking can be exemplified by this thought process:

If there are two train tracks, on one of which lies ten people and on the other one just one person, and you hold the power of choice which tracks the upcoming train will use, all the people are strangers to you, and they do not know one another either. According to utilitarianism, you should choose the track with only one person lying on it because the total amount of pain of ten people getting killed is higher than just one person getting killed. One can suggest that both cases are morally wrong because you are deciding upon people's death, but utilitarianism makes this decision much more arithmetic.

According to Kaplan (2022a), the main problem of utilitarianism is that it strips off rationality and only focuses on if the outcome is pleasurable, which is not necessarily the only factor that accounts for morally good action.

2.3 Intentions of Your Action

What is meant by "intentions of your action" can be summarised in two sections of ethical theory. One being Kantian Deontology and the other Virtue Ethics. This approach to moral evaluation focuses on the "intention" rather than the "outcome" of an

action. Unlike Utilitarianism which only examines the morality of the consequences of an act, this method of thinking takes into account the purpose behind an act.

2.3.1 Kantian Deontology

Kantian Deontology is the ethical theory that Immanuel Kant established, and it is one of the ethical theories that functions through evaluating one's intentions in taking action. Deontology is a theory that defines "right" independently of the "good," according to Driver (2007). Deontologists argue that what makes an act ethically "just" or "wrong" is the act itself, not the consequence of that act.

Deontologists hold that some deeds are simply immoral, even if they serve the greater good. Like the train track example mentioned in the utilitarianism chapter, killing one person to save ten is one such deed. Though many deontologists are not absolutists, even they can admit that in extremely dire circumstances, killing an innocent person might be justified in order to rescue a sufficient number of people (Driver, 2007).

Deontology mainly relies on maxims when deciding if an action can be deemed right or wrong. Maxim can be defined as the promise to do something in the future (Kaplan, 2022a), and this essentially would be the "promise," hence the intention of one's action. According to Kaplan (2022a), by figuring out the maxim of an action, one can also determine if the action is right or wrong. If anyone can contradict the maxim, then that action is morally impermissible.

2.3.2 Virtue Ethics

Virtue Ethics is yet another approach that prioritizes the intentions of action, but it does it through the virtues that rely upon social constructs and rules rather than maxims.

The foundation of virtue ethics is that before considering moral questions and circumstances, we should first think about how we ought to be. We may also take into account the virtue of a person we admire. Instead of providing a straightforward decision-making process, virtue ethics encourages us to think of a good person and contemplate what they would do. Because correct actions are defined in terms of virtue rather than vice versa (Driver, 2007)

Virtues are a person's ability to do good. Courage, honesty, and righteousness are virtues one can have, and we utilize these to be "good" humans. Aristotle argued that exercising one's virtues makes one achieve rationality which was, according to Aristotle, the purpose of humans (Kaplan, 2022b). Therefore, only being virtuous was not enough; one would need to exercise those virtues to establish their rational being to achieve happiness. This happiness would be, in his words, "eudaimonia," which is the feeling of success and fulfillment, human flourishing.

2.4 Why be Moral?

It is hard to answer this question without any objective, valid moral code. Most philosophers and ethics professors theorize around this question, and some have produced their subjective answers. According to Aristotle, for example, one should be moral for their own happiness. As explained before, Aristotle theorized that one could achieve "eudaimonia" through being a moral human. On the other hand, Nietzsche argued that morality is established entirely by our society of "losers"; therefore, it is meaningless to abide by the rules of conventional morality (Kaplan, 2022b).

Ethics can be described as a pursuit of good, and this pursuit is always influenced by the thoughts and customs of humanity throughout history. So it can be said that being moral is a relative term that can change according to the circumstances and social factors.

INTERACTION DESIGN & HOW IT AFFECTS OUR LIVES

3 Interaction Design and How It Affects Our Lives

"Interaction design is the design of systems in which people and artifacts engage each other in usually computer-assisted interactivity."

(Bagnara, 2006, p. xxi)

In this chapter, the reader will go through a journey from broad to narrow. The chapter will start by explaining what design is and its different properties. Then it will dive deep into interaction design; questions like what it is, how it works, and why we need it will be answered. Afterward, the chapter will go on with the core principles of interaction design and how they guide design in aspects of behavior, form, and content. Last but not least, the impacts of interaction design on people's lives, the environment, and our economy will be discussed.

3.1 Design

What is design? According to different English dictionaries (Cambridge Dictionary; Oxford Dictionary; Dictionary.com), design can have several meanings. The essential meaning can be deduced from a plan or drawing that is made to show the form, functions, and structure of something. Hence designing can be viewed as planning. Through this understanding, everyone can be seen as a designer, which is not wrong. Design is essential to all human activity; it determines what people do in their lives. It is an act of planning that can not be taken out of life itself because it is the underlying matrix of life itself (Papanek, 1985). According to this definition, design is a core part of humanity's life, and it can be said it is the core distinction of humanity. The ability to plan and, more importantly, to communicate that plan is one of the things that makes us human. After all, again according to Papanek (1985), design is the conscious and intuitive effort to create meaningful order.

3.1.1 Design Paradigms

Design processes and activity can be described in two paradigms (Dorst & Dijkhuis, 1995). As Coyne (1990) puts it, design is a complex field because of the conflicting nature of these actions. These two paradigms compete but also complement each other as the abstractions of the design process.

Dorst and Dijkhuis (1995) write that the first one, rational problem solving, has been the primary way of looking at design processes since the early 1960s. It can be regarded as the positivist and rationalist building blocks of design theory in which design is viewed as a rational problem-solving process. This approach has been the main influence in shaping today's design methodologies.

According to Dorst and Dijkhuis (1995), the second one is the reflection-in-action, which can be described as a reflective con-

versation with the situation. Rather than describing design actions as core problem-solving tools, this approach suggests that designers' skill lies in understanding and defining how to tackle fundamentally unique problems.

The summary of these clashing but also complementary paradigms is effectively summarised in Figure 1. As rational problem solving appoints designers as "information processors" and the design process as a "rational search process," it establishes design as a thing that can be devoid of responsibility. Reflection-in-action defines the designer as a person who constructs their reality and calls the design process "a reflective conversation" this view of design is much more human and social in the sense that designers are responsible for their actions because they are constructing their own realities in which they need to follow a process that is reflective and conversing. The two abstractions of the design process can also be summarised as reasoning about objects and actions (Coyne, 1990). Reasoning about objects being objective-oriented and pragmatic, rational problem solving, and reasoning about actions represent the artistry of design and the socially involved reflection-in-action.

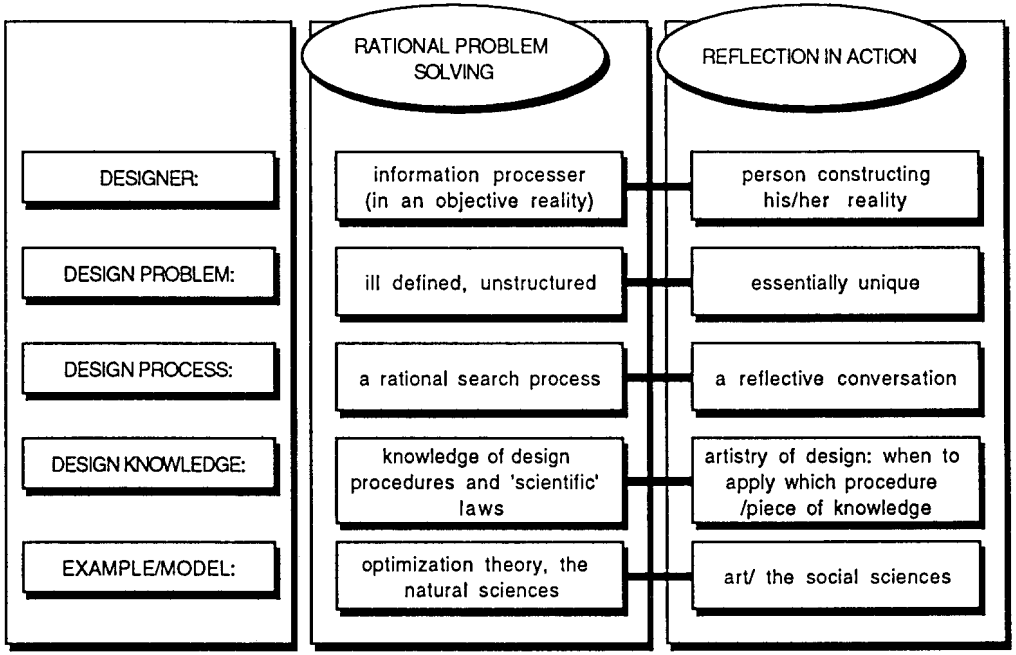


Figure 1 (Dorst & Dijkhuis, 1995, p. 263)

3.1.2 Different Approaches to Design

Design comes in different forms and functions; it is crucial to understand some of the teachings and schools of design when trying to understand its dynamics. Design approaches are philosophies that can guide the designer through the design processes. They influence the goal of the design and the tendencies of the designer. When it comes to responsible decision-making, they can be highly relevant. Some of these approaches include but are not limited to:

- **Critical Design**
  A term first used by Anthony Dunne in his book Hertzian Tales (1999), it suggests that design should challenge the status quo and *"think deeply about the possible future consequences of present choices"* (MoMA, n.d.).

- **Participatory Design/Co-Design**
  The design approach where all stakeholders are involved to ensure that everyone is satisfied with the result. An approach that also sheds light upon design disciplines like interaction design, experience design, and service design (Carlsson, 2011).

- **Universal Design**
  Design that is accessible, understandable, and reachable to the greatest extent possible by all people (Centre for Excellence in Universal Design, n.d.).

- **User-Centered Design**
  An iterative process in which the main focus is the users throughout every stage of the design process. The designers put the users and their needs in the center using various research and design techniques to develop highly usable and accessible solutions (Interaction Design Foundation, n.d.).

These four main approaches are the essentials for an interaction designer. As interaction can not be imagined without the participation and involvement of the user, and the access of all different groups, it

also can not be constructed without a stable basis in critical decision making. These critical decision-making processes should be *reflective in action* as Schön (1983) explains it.

3.2 What is Interaction Design?

Of so many various design fields, interaction design is one of the more human-centered ones. It is most predominantly concentrated on satisfying peoples' needs and desires when they are interacting with a product or service (Cooper et al., 2007). As the name also suggests, it is the design of interactions, hence communication and synergy, which are primarily human elements. It can be described as the creation and shaping of the dialogue between people and products, services, or systems (Kolko, 2011). It sits in the heart of different design disciplines; as seen in Figure 2, interaction design has several different colliding points with other disciplines.

"Interaction design borrows theory and technique from traditional design, usability, and engineering disciplines. But it is greater than a sum of its parts, with its own unique methods and practices." (Cooper et al., 2007, p. xxvii)

This results in interaction design being a very interdisciplinary and fluid field. It can transition into and be supported by these accompanying fields, making it a broad area. As Interaction Design Foundation (n.d.) puts it, the interaction between a product and person can involve elements like sound, motion, aesthetics, etc., and every involvement brings its specialized field. While this synergy between so many design fields has its advantages, it also can bring up its own problems.

At its core, design can be divided, as mentioned in the previous chapters. This divide can manifest itself in two different design approaches, "emotional" and "rational." Interaction design is a field that leans towards the emotional side with its inherently humanistic and social approach. It also has a rational side that ties with engineering and marketing. With its power to establish who the product is for and why they need it, as well as extensive qualitative research

and user analysis, interaction design becomes a great marketing tool (Cooper et al., 2007). Cooper et al. (2007) also go on to say that interaction design is an excellent tool for making more money with its professional knowledge of "what the user wants" however, this can be said for every design discipline in essence. The biggest issue of defining design as a moneymaking tool is that it strips design from its emotional ties and makes it just a tool for growth and competition. Which makes the people behind the action, hence designers, alienated from the decisions they make and their circumstances. Therefore it is vital to keep in mind the emotional and rational balance that makes up interaction design.

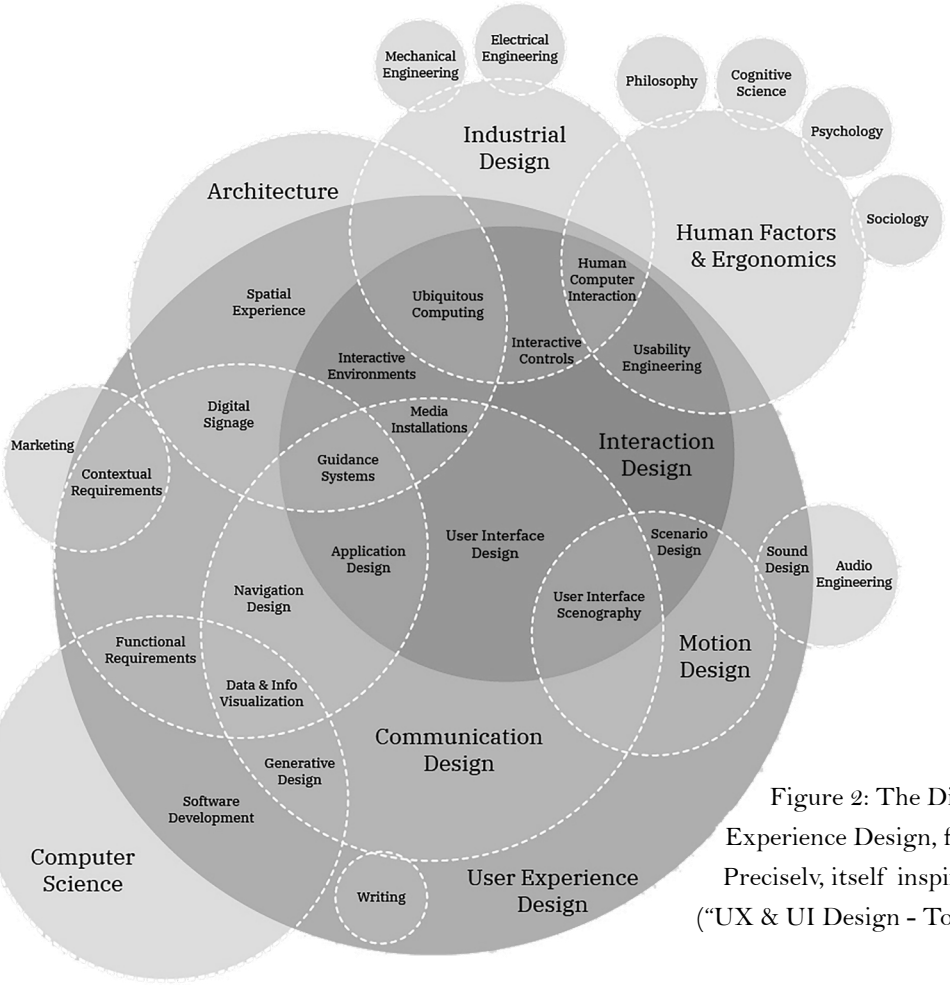


Figure 2: The Disciplines of User Experience Design, forked from Envis Precisely, itself inspired by Dan Saffer ("UX & UI Design - Toronto City Guide Ios App," n.d.)

3.3 Interaction Design Principles

The goals of interaction design principles are to promote the design of product behaviors that support the requirements and desires of users. As Cooper et al. (2007) suggest, these principles, which address issues with conduct, structure, and substance, are widely accepted norms. At the core of these values is the notion that human interactions with technology should be designed to take into account their capabilities of perception, cognition, and movement. Instead of the other way around, technology ought to be used to enhance human creativity and intellect.

Through these principles, designers can formalize the design process in a way that will benefit all stakeholders involved. According to Cooper et al. (2007), these principles fall under the following categories:

- **Design Values**
  These are the values for effective and moral practice of design. These are the driving principles that affect and influence lower-level principles as well. Also, these are the principles that will be focused on in this work.

- **Conceptual Principles**
  These define the product and how it fits in the use cases of the user.

- **Behavioral Principles**
  These highlight how a product should behave.

- **Interface-Level Principles**
  These principles describe the efficiency of visual communication of a product's behaviour and information.

3.3.1 Design Values

Design values have emerged through the need to establish a basis for designers to act upon. According to Cooper et al. (2007), there are four central design values that were developed by Robert Reimann, Hugh Dubberly, Kim Goodwin, David Fore, and Jonathan Korman. These values aim to be applicable within any design profession and any design task. These values are as follows: A designer should create solutions that are ethical, purposeful, pragmatic, and elegant. Of these values, the first one has the utmost importance because it deals with the fundamental effects designers can have on others' lives.

It can already be seen that ethics and design are intertwined together, and it is hard to start an interaction design project without taking these aspects into consideration.

3.4 The Impacts of Interaction Design

"Interaction Designers exist to support experiences through the continual dialogue between people and products."

(Kolko, 2011, p. 17)

This quote proves that interaction design exists because of a fundamental need established by the increasing communication between people and products. As long as technological advancements pursue, there are going to be more and more instances where human-computer interaction is prevalent. This prevalence enhances the interaction designer's role in our lives.

Kolko (2011) defines a norm as a learned behavioral pattern that helps establish what proper and typical behavior within a particular culture or community is. Interaction designers, like all designers, have the ability to influence these norms and even initiate cultural change. For example, as phones evolved into intelligent little computers that can be carried in our pockets, the norm of calling someone on the phone to communicate with them has also changed.

Nowadays, calling someone on the phone is considered a hindrance by the younger generations, and it should only be resorted to in an emergency situation. People started to prefer texting over phone calls, not over old-school SMS but rather over social networking applications like WhatsApp or Instagram. This shift in the communication paradigm was by design. Our abilities have expanded through the smartphone revolution, and actions that used to be considered out of place or maybe even rude became the public norm. Interaction design has played a significant role in this change by establishing new interfaces where it is much easier to contact someone through social media and prioritizing app usage over basic phone functionalities. These kinds of cultural changes can be examined in many different aspects.

Each delicate choice a designer makes may appear unimportant on its own, but as they are adopted by society as a whole, they each gain significance. It is challenging to link a change in culture to a particular design decision because these decisions have a delayed effect and do not become apparent until months or even years after they are made in the design studio (Kolko, 2011).

It is hard to imagine our lives without digital technology. Almost everyone has a phone in their pocket capable of looking up any desired information, communicating with different people, searching for places to go, and seeing where you are on a map. Moreover, with the Internet of Things (IoT), the abilities we have through our tools are only expanding. These smart devices are becoming extensions of our bodies because of the convenience they provide but also because our world is evolving into a more challenging place to live without such devices through this massive change. Furthermore, interaction design fuels this change in every form. Every website, app, and digital interface that people interact with is a product of interaction design. It does not matter if an engineer or a marketing team was behind the decisions for establishing that design; it still counts as interaction design. However, as Cooper et al. (2007, p. 9) put it: *"Even with appropriate skills and the best intentions, it simply isn't possible for a programmer to advocate effectively for the user, the business, and the technology all at the same time."* Since the interaction design

profession exists in such an environment, the designers are responsible for advocating for the user and measuring every decision they make, considering the intentions and impacts of their design act.

To conclude, the impacts of interaction design can be effectively put under three main points: Social, Environmental, and Economic. Firstly, social in cultural and behavioral factors. Secondly, environmental in the aspects of the impact on the natural or human-made surroundings. Thirdly, economics regarding the different dynamics of the financial impact on the users, companies, and the monetary systems a design solution creates.

HOW ETHICS AND DESIGN COLLIDE

4 How Ethics and Design Collide

Interaction designers are faced with ethical questions throughout their careers. These ethical questions establish how a design solution will be shaped and helps the designer to make the right decisions- but in some cases, also the wrong ones. In his paper Steen (2011) makes the case that reflexivity is necessary while practicing participatory design in order for the designer to address ethical concerns more effectively. He supports this claim by suggesting inquiry as a technique to reflect upon what is being done and felt constantly. He also stresses that there are significant contrasts between concentrating on the end product of a design and employing various ethical vantage points to inform design decisions.

Another research by van Gorp (2007) examined several engineering design case studies that were either of a conventional or radical character. In his study, he came to the conclusion that designers adhered to norms and regulations less closely while dealing with radical design procedures than when using standard design methods. When making judgments about moral matters throughout the radical processes, the designers tended to depend more on internal design team norms.

This chapter is aimed to explain how design and ethics relate to one another and in what cases they connect. First, the analogy between moral problem solving and design problem solving and their overleaping aspects will be explored to establish this connection. Secondly, the relation will be overviewed in social, environmental, and economic (Caro del Castillo, 2015) aspects through the existing research; as mentioned previously, these three points are the main impacts of interaction design. Therefore, it is important to see how they also relate to ethics as values. Moreover, the Design Values discussed in Chapter 3.3.1 is going to be re-evaluated.

4.1 Ill-Structured versus Design Problem Solving

As mentioned previously, design is a field that deals with ill-structured problems. In contrast to ill-structured problems, which often lack a precise formulation of the problem and may contain conflicting problem solutions, well-structured problems typically have clear goals, fixed alternatives to choose from, typically only one correct answer, and rules or methods that will generate more or less straightforward answers (Dorst & Royakkers, 2006). Well-structured problems can be defined as arithmetic, similar to the arithmetic nature of Utilitarianism. However, moral problems usually present themselves as ill-structured. Given the fact that designers find themselves dealing with these types of problems all the time (Dorst & Royakkers, 2006), the analogy of ethics and design makes itself more evident in the notion of ill-structured problems. Hence, it can be deduced that when dealing with moral problems, designers are well capable and prepared due to the nature of their very profession. Although it is also important to note that design problem solving and ill-structured problem solving can differ in several ways, as Dorst and Royakkers (2006) make clear, design can not be the source for all kinds of problem-solving. If that was the case, all moral problems could be easily dealt with through the application of design problem-solving.

The notion of ill-structured problems was explored first by Herbert Simon (1973); he stated that the problem-solving methods for these problems should include a different type of reasoning. Armand Hatchuel (2001) builds upon Simon's exploration and highlights the difference between ill-structured problem solving and design problem-solving in three main points.

- The first difference is that design treats the solution process as a project due to its iterative methodologies of expanding and framing the problem. Imagination must be used in design from the very beginning when notions are being interpreted.

- Secondly, design uses experiments and simulation techniques like prototyping to establish "learning devices." These devices are then used in order to get to a solution.

- The third difference is that the process of designing includes understanding and incorporating social relationships.

From this comparison, Dorst and Royakkers (2006) conclude that design indeed entails ill-structured problem solving within its core. However, it also includes several other processes. If design is approached as a rational problem-solving process, the problems can be seen as ill-structured; on the other hand, if design is to be treated as a process of reflection in action, the problems become essentially unique. This ideation can be compared to the differences between deontology and utilitarianism; the more rational and consequential rational problem-solving process has its similarities with utilitarianism, while reflection in action overlaps with the intention-oriented and duty-emphasized deontology. It can be concluded that these similarities give designers a well-trained ability to tackle moral problems, the only dilemma being which dominant method to follow and how to incorporate moral responsibility into the design process.

4.2 Value and Design

A value is defined by Friedman et al. (2009) as what a person or group of people view as important in life. These can be family, work, one's self-empowerment, or as simple as having a nice breakfast in the mornings. The monetary value of an object is not as significant of a question when it comes to defining "value," even though money itself can be viewed as a value for some. Friedman et al. (2009) also state that ethics has occasionally been included in a theory of values and, conversely, that ethical values have occasionally been considered as only one element of ethics more generally. Values cannot be fully explained by an empirical study of the outside world and instead depend critically on the goals and aspirations of people within a particular cultural context.

Dorst and Royakkers (2006) state that there are four types of values which are instrumental, final, extrinsic, and intrinsic. Instrumental value can be seen as a tool to reach a final value. Money is an excellent example of an instrumental value; it is used as a value to acquire final value in the form of what one receives from the transaction. Final value can be defined as a value that is not associated with anything else, and it is the end value. Notions like happiness or fulfillment can be regarded as final values. Values can also be extrinsic or intrinsic. When an object produces extrinsic value, it means that the value is outwards. For example, a bike lock provides the value of safety for your bike. In contrast, intrinsic values are much more related to the object itself; for example, a poem provides a value that is created solely from its composition. As a designer, it is vital to know which of these values are relevant to the profession. Understanding what kind of value is created through the design process is effective in acknowledging the responsibility of moral conduct.

4.2.1 Value-Sensitive Design

The most general approach for incorporating value in design is Value-Sensitive Design, developed by Batya Friedman and Helen Nissenbaum. Value-Sensitive Design is a theoretically supported

method of design that takes into consideration human values in a thorough and systematic way throughout the design process. It uses a tripartite technique that combines conceptual, empirical, and technical research in an integrated and iterative fashion (Friedman et al., 2009).

Dorst and Royakkers (2006) summarize that the normative basis for ethical evaluation, the lack of clarity surrounding the concept of value, and the lack of comprehension of how values are transformed into design requirements are the main criticisms of Value-Sensitive Design and other related techniques. That is why in this work, the term value and its relation to design are discussed in detail. Although, the author agrees with Friedman et al. in utilizing the normative basis for ethical evaluation because of the more practical and action-oriented approach of normative ethics.

4.2.2 Social Values

Social values play an essential role in both ethics and design. The social structure and how society interacts, views, and communicates with each other establishes the moral nuance. This establishment also affects design; by nature, design is a social practice; it relies on humans and evolves with humans, which makes it also responsible for the social values established by the society it is involved in. In order to perform virtues for our ventures, we interpret social values (Caro del Castillo, 2015), which means that to be virtuous is to be in touch with society and to design with social values in mind is to engage with these virtues.

4.2.3 Environmental Values

The environment is defined as the natural and human-made surroundings and habitats that encompass all living and non-living beings. Environmental values can be explained as preserving these surroundings (Caro del Castillo, 2015) or improving them for the better. Again designers hold a grave responsibility when it comes to the environment. The products and systems they design can change

and influence how people interact with their environment, and it can also directly affect the environment itself. Andreas R. Köhler (2012) claims that designers and engineers have a significant influence on the environment through the decisions they make, like which materials will be used or within which spheres (cultural, geographic, etc.) the designs will be implemented. He also states that people working in these fields have the power to initiate change towards more efficient and sensible usage of resources and materials. These claims can be associated with the principle of sustainable design. This movement has been gaining more and more traction over the years due to the increasingly devastating effects of climate change. Ethical design should be a notion that establishes itself with but is not limited to sustainable and eco-friendly decision-making. Therefore, designers who understand and implement environmental values within their work would be on a path to 'ethical design.'

4.2.4 Economic Values

Economic values are highly relevant to the decisions designers make due to the fact that most of the decisions people make are financially motivated by the current economic norms and the capitalist system. Design as a profession positions itself in this system as an influential factor. As financial constraints and profitability can influence design decisions, design can also influence the economics of many industries and financial disparity; therefore, it can be said that it is a two-way street. For example, as material costs affect the decisions made throughout the manufacturing process, designing a product with planned obsolescence or positioning design as a factor to inflate prices and applying design methods for the sake of differentiation also influences the market environment and contributes to economic fluctuations.

There are many ways to consider economic values when designing a process or a product. While some of these strategies are, in fact, thought to live in harmony with other values (such as environmental and social values), many of them are based on the idea of making more money even though this is incompatible with the values mentioned above. Economic values motivate the user or

customer to participate in a financial flow where the acquisition of bigger volumes of profit is the goal since they are dependent on the notions of acquiring revenue and generating financial growth and stability (Caro del Castillo, 2015). Asking companies to reconsider their practices may be viewed as unfair competitive disarmament since, at times, economic values may be given more weight throughout the design creation process than the other two values (Guiltinan, 2008).

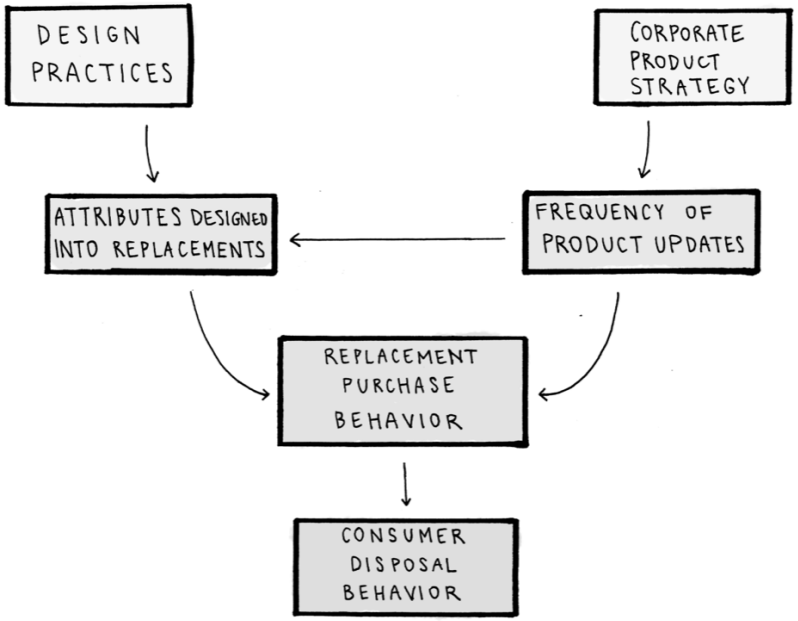


Figure 3: Planned product obsolescence methodology created by Joseph Guiltinan (2008, p. 20)

In Figure 3, it can be seen how design practices can be adjusted according to the corporate product strategy of planned obsolescence because of its profitability. These practices are morally questionable actions and are another example of how designers are responsible in their decision-making processes for paying attention to and questioning the economic values in consideration. Although, it is also important to note that in this aspect, some responsibility also falls in the hands of governments and regulatory authorities. Due to the nature of growth-oriented free market capitalism, companies, when left to their own will, can make decisions prioritizing profit and disregarding moral values. In these cases, designers can not be the sole responsibile; it can be possible to make change

through a collective mentality towards more ethical design; however, it is impossible to ensure that it can be sufficient, effective, or fast enough to implement. Hence, the author suggests a more top-down approach when it comes to the economic aspect of ethics in design. Some regulation examples regarding design and ethics will be further explored in Chapter 5.3.

4.3 Design Values Revisited

The set of principles already introduced in Chapter 3.3.1 governs interaction design at its core. This chapter will serve as a broader explanation for the four values in question and will dive deep into the value of 'ethical interaction design.' Moreover, connections will be established between the problem-solving methods and all the different values that were discussed previously, and that will be discussed. The four values interaction designers need to keep in mind when designing solutions are as follows:

"

- *Ethical Design [considerate, helpful]*
  - *Do no harm*
  - *Improve human situations*

- *Purposeful Design [useful, usable]*
  - *Help users achieve their goals and aspirations*
  - *Accommodate user contexts and capacities*

- *Pragmatic Design [viable, feasible]*
  - *Help commissioning organizations achieve their goals*
  - *Accommodate business and technical*
  - *requirements*

- *Elegant Design [efficient, artful, affective]*
  - *Represent the simplest complete solution*
  - *Possess internal (self-revealing, understandable) coherence*
  - *Appropriately accommodate and stimulate cognition and emotion*

"

(Cooper et al., 2007, p. 151-152)

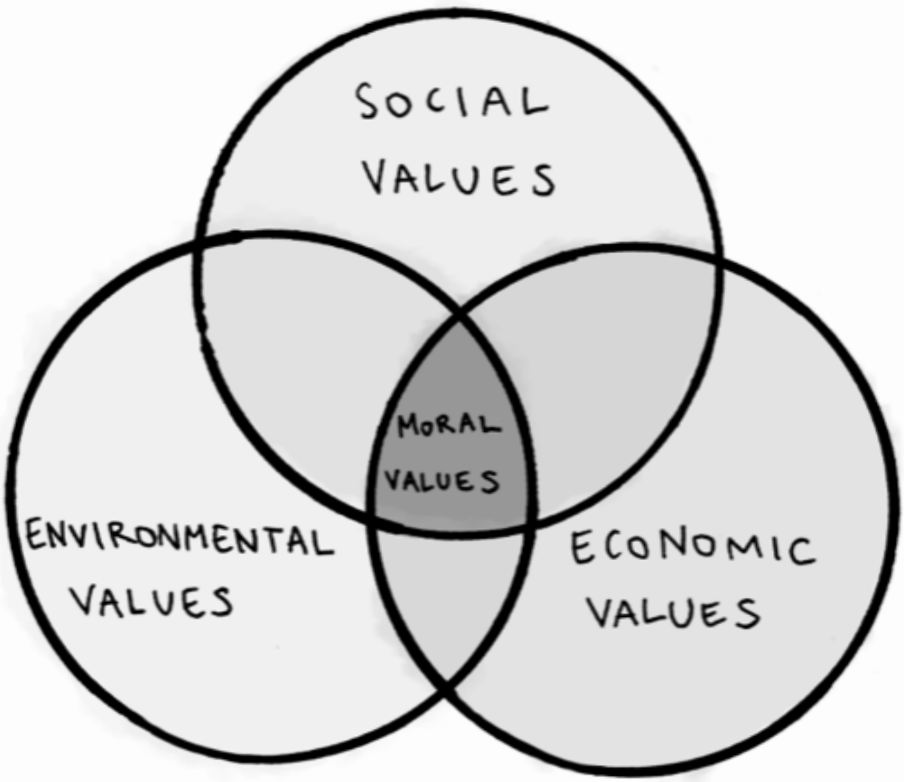
4.3.1 Ethical Interaction Design

As shown in the last chapter, Cooper et al. (2007) divide ethical interaction design into two sections: "Do no harm" and "Improve human situations." This approach includes both definitions of ethics depicted in Chapter 2.4. Therefore it aims for a design practice in which moral situations are dealt with in a holistic manner. The three central values discussed prior should be the basis of all design projects. All three are intertwined, and ultimately they influence the ethics of design. To do no harm, designers first go through the harm that can be done on social, environmental, and economic levels. Moreover, to improve not only human but all situations — "doing good," designers should weigh the problem within the three aspects and generate solutions to improve them.

Interaction designers should consider specific points throughout the design process to achieve holistic moral decision-making. These points are as follows:

- **Usability** Communication, User-centered, Understandable
- **Accessibility** Inclusive, Universal
- **Transparency** True, Open, Accountable
- **Privacy** Trustworthy, Respect
- **Equity** Social, Financial
- **Sustainability** Efficient, Environmental
- **Safety** Individual (Mental and Physical), Society, Environment

When all these points are addressed and touched upon, the ill-structured problem can become a little more structured regarding moral evaluation. In conclusion, normative ethics finds its way into interaction design through their shared similarities in their problem composition and problem-solving methods. Through specific values in play with the virtues of a designer and intent, intention plays the most prominent role when it comes to design decisions. It is also the aspect that determines an action's moral spectrum.


SOCIAL VALUES
MORAL VALUES
ENVIRONMENTAL VALUES
ECONOMIC VALUES

EXPLORATION:

HOW IS IT?

5 Exploration: How is it?

In this section, the author aims to inform the reader about the status-quo when it comes to the ethics of interaction design. It will be a journey through the profession of interaction design, evaluating every step that can and does influence the morality and decision-making of the designer. Firstly, the education given to today's designers will be looked at. What methods are used, and how well do they learn about the responsibilities of their craft? Secondly, the employment process of the designers will be analyzed. What are their and the employer's desires, and how do they compare? And, in what ways do these influence the intentions and actions of the designer? Thirdly, the regulations and standards in place will be introduced and assessed. Last but not least, some examples will be given to provide a view on moral decisions in design, affecting the three main values stated in Chapter 4. As a result, a good understanding of the current state of interaction design profession concerning its relationship with ethics will be established by this chapter.

5.1 Design Education

"Working ethically is a skill, and it's a skill that needs to be taught and then developed."

(Monteiro, 2019, p.62)

Professionals are increasingly required to possess various skill sets and comprehend several knowledge areas in the context of a human-centered design process due to the market-driven advancement of developing technologies (Beyer & Hoszbalatt, 1998). One of the most critical steps to achieve these skill sets in a design career is education. It is the starting point of learning the creative process, the problem-solving techniques, and many more tools a designer might need throughout their career. However, there are indeed parts that the design education is missing, especially the interaction design education, due to it being a newly emerging field. This chapter is dedicated to the point where design education stands, and it points out the aspects it might be missing.

Kolko (2011), in his book on interaction design, also talks about design education, and he points out that Master's and Ph.D. design degrees capture a way more focused form of humanitarian design education tackling the social component of design, especially in Europe. He also states that in Europe and Asia, Cumulus — The International Association of Universities and Colleges of Art, Design, and Media has been effective in advancing studies on ethics and humanitarian design education as well as in exploring issues of equity and morality. However, in the United States, the main focus is still to embrace the financial appeal of business which results in more of a financial-oriented and non-questioning design education. This divide is concerning since the United States is possibly the leading country when it comes to tech and software development.

Future of Design Education (n.d.) is an organization that has dedicated itself to the betterment of design education through focusing on research and the components that impact people, communities, and society. According to them, the vast majority of college design programs continue to emphasize the appearance of objects,

despite a decline in the employment of this type of approach. Design education encounters many difficulties. Design issues increasingly center on a variety of planned processes, services, systems, and communities rather than discrete products for communication and manufacture. Some designers work with complicated socio-technical systems that cover anything from problems in small towns to global problems. Numerous new opportunities arise as industry, government, and society pay more attention to the potential of design. To handle these difficulties, designers require a particular kind of education.

In his book, Monteiro (2019) addresses how current design students are educated using methods of the past with much emphasis on creativity and personal expression. He argues that most of the design school graduates are incapable of adequately presenting their work, taking criticism or feedback, measuring the impact of their work, and worst of all, *"they confuse solving design problems with personal expression"* (p. 63). He finds the reason for this confusion in the state of design education in which most of the design faculties find themselves under art schools, and under these schools of teaching, the students are only taught to boost their creativity and self-expression without any mention of the responsibilities of the craft of design. He also suggests that designers should be taught how to perform their craft the right way, saying no to the requests that ask them to practice their profession unethically, even if it would get them fired.

According to Dribbble's Global Survey (Dribbble, 2019), the majority of designers worldwide are self-taught, compared to 50% of designers in the US who claim to have learned their trade in a school. Only 29% of designers worldwide say they learned design at school, and only 15% say they picked up their talents while working. Globally, 42% of designers say they learned design on their own. When the issues of design decision-making come from the fundamental stages of design education (or no education at all), it can be said that changing the way design is taught is crucial. Teaching staff for design-focused core courses must assist students in understanding how creating interactive products requires knowledge from a

variety of subject areas and how form, function, human need, and social context interconnect (Faiola & Matei, 2009). This interaction should hold the utmost importance because it makes one understand how design is a multidisciplinary field where only relying on creativity will not solve all the problems.

When it comes to interaction design education, the scene is even more convoluted. Since most interaction design degrees have their roots in either art or engineering schools, there is no consensus on interaction design's didactic structure or subject matter (Cooper et al., 2007). As Monteiro (2019) suggests, art schools focus on a more creative and art-oriented approach when it comes to design, while engineering schools might highlight the technical side of the craft. This separation results in two different types of designers who can not communicate with each other with their lacking understanding of the social aspect of design. Not to mention that out of the few schools that teach interaction design or some form of it struggle to capture a well-structured education because of the novel and ever-changing state of the field. Thomassen & Ozcan (2010) argue that few academic institutions have a well-established pedagogical approach to interaction design education, despite many having long histories of teaching and pedagogy. Under these circumstances, it can be said that interaction designers are missing key structures and pedagogies in their education, and they are expected to learn the craft as they work which is highly dangerous considering how much impact a simple app has on people's lives nowadays.

Kolko (2011) suggests that we can produce a generation of designers who anticipate working on important and socially relevant challenges by moving design education away from the constraints of commerce and toward the subject of humanitarian problem-solving. He goes on to say that this necessitates an ongoing discussion about morality and values, which emphasizes that not all problems are equally deserving of being solved. This relates to what Monteiro also argues, designers should be equipped with the knowledge that not all problems are worth solving, and they should have the tools to establish this clearly to their clients or employers.

To conclude, designers must be fully able to understand the impact of their decisions and realize that they are engaging in design merely by choosing to focus on a particular field of study or style of problem-solving (Kolko, 2011). Especially with the increasing demand in fields like UI or UX design, and human-computer interaction, the responsibility falls on the shoulders of interaction designers. They need to learn the values and virtues that influence the intentions of their actions and how those intentions impact society, the environment, and the economy at large. This knowledge can only be gained by the proper pedagogy and ethical teachings surrounding the profession. It does not matter if the designer learned the skills from a well-established academic institution or a month-long online course; the first and fundamental learning a student should receive is the ethical questioning of their craft to become a responsible interaction designer.

5.2 Hiring Designers

How does the professional arena affect design decisions? Designers must work toward a diverse and equitable community of practice that incorporates the opinions of everyone whom its results will impact. To achieve this, the hiring process of designers should be rethought and evaluated. It is crucial to analyze what job-seekers and employers in design are looking for, how their demands align, and where the pain points are when it comes to ethical action. Design is a field that adds value to the business it is involved in. In companies where design is well-practiced, success rates are much higher. A direct correlation exists between the work of the design team and the company's revenue in 92% of businesses with the greatest degrees of design maturity (InVision, 2019). Therefore, designers are in high demand because of the contribution they bring to the table.

Designers seeking a job are first and foremost looking for a strong design culture within the company. A company with a strong design culture focuses on developing experiences that improve the lives of its customers. This culture depicts a work environment where the user experience is given top importance and is based on design thinking ideas (InVision, 2019). On top of that, in Figure 4,

it can be seen that most designers would like to work with companies/employers who solve challenging problems and do meaningful work. From these figures, it can be seen that designers are searching for jobs where they position themselves as social and helpful. This position also provides designers with more satisfaction with their jobs. It has been demonstrated that having abilities outside of creativity increases job happiness, particularly for designers who have commercial skills and own their businesses (Jacobs et al., 2016). Designers who can step out of their educational boundaries can reach a point where they can reflect on their actions and intentions, which would hopefully foster a more ethical work environment.

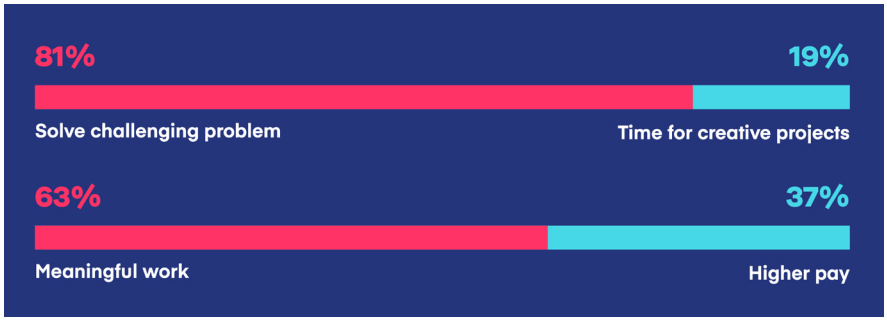


Figure 4: Qualities product designers want most in their next employer (InVision, 2019, p. 11)

Employers are looking for designers who have a multidisciplinary and broad skill set. Evidence suggests that designers have a comparative advantage in the concurrent design industry when they widen their horizons and apply their expertise to various industries, functioning as knowledge brokers or intermediaries (Lavanga et al., 2021). As discussed prior, designers who are only educated in certain schools of thought can not attain this advantage. Interpersonal communication, leadership, and organizational abilities — so-called transferable skills from job to job — are increasingly more valued in the industry than creativity-related skills (Comunian et al., 2011). This also concurs with Monteiro's view that educating designers with only creativity in mind is the wrong path to follow. According to the survey InVision (2019) conducted, employers look for a balance of both hard and soft skills in a designer: The top three hard skills that managers look for in product designers are user re-

search, UI design, and UX design; cooperation, communication, and empathy are among the top soft skills. The survey also states that only one in four product designers claim to have both of these skill sets at the moment. This rate is concerning; it confirms that design education fails to provide the students with the necessary skill set that most employers desire. Due to the state of the design education discussed in the previous chapter, it can also be theorized that most of the designers that are in the 3/4 would have the hard skills but would lack the soft skills.

According to Monteiro (2019), the developing language of the new tech environment deems moving quickly and scaling fast superior. This rapid and harsh environment marginalizes people and populates the profession with people who have specific attributes and privileges. Only 25% of computing positions are held by women, according to a study by The National Center for Women & Information Technology's Women in Tech 2016. White women hold the vast majority of those positions. Women of Latino descent made up just 1% of that workforce. It is hard to talk about hiring processes without talking about the inequalities. These types of inequalities result in design teams that are composed of primarily white males, argues Monteiro (2019). He highlights the importance of having a workforce that comes from diverse backgrounds and cultures to establish a more communicative work environment where ideas that might change lives can be discussed thoroughly. This is accomplished when designers purposefully design products, systems, and spaces to reflect the lived experience of underrepresented communities.

In conclusion, what designers should bring to the table is intention. They can bring change to a company through their skill set; however, that skill set needs to be equipped with both hard and soft skills to capture the attention of the employer and the essence of the craft itself. *"Today's designers need to be systems thinkers, experts in regulation, collaborators, communicators, and fearless. We need to understand our job is to be advocates for the people who aren't in the room."* (Monteiro, 2019, p. 69) For design to advocate for the missing people, it needs to be populated by the *people.*

5.3 Standards and Regulations

Every industry has its standards and regulations, and some even have licensing. These provide integrity and structure to the industry and keep the practitioners accountable for their actions. In the current society, it would be unimaginable having no principles or statutes for a profession that affects people's lives directly or indirectly. This is also the case for interaction design. There are several standards issued by different standardization organizations (e.g., ISO, ANSI, WAI, etc.) on national and international levels. Then there are legislations that were put in place by the governing bodies like states, governments, and unions.

Expert committees representing pertinent organizations produce international standards, which are then made available to the public for comment and revision (Brooks, 2021). These international standards can influence a lot of sectors and most of our lives. We are in contact with them all the time, when using an electronic device, buying food, driving a car, or simply sitting on a chair. ISO 9241 Ergonomics of human-system interaction is the standards collection that applies to the interaction design field. Over 40 standards make up the ISO 9241, which is about how people engage with interactive technology. Some examples under this collection that relate to interaction design as of the date this thesis is being written are:

- ISO 9241-210:2010 Human-centred design for interactive systems
- ISO 9241-110:2020 Interaction principles
- ISO 9241-171:2008 Guidance on Software Accessibility
- ISO 9241-11:2018 Usability: Definitions and concepts

These standards get updated over the years. Especially when the field is an emerging and changing one, like interaction design. Above, it can be seen that the latest update has been made to the "Interaction principles," which is the standard that directly relates to the topic of this thesis.

5.3.1 ISO 9241-110:2020

The interaction principles defined by ISO are there to standardize the interaction process on an international level. To paraphrase from the document's introduction, the user of an interactive system will be this document's main benefactor. The application of this document by the designers of the interactive system will result in user interfaces that are more usable, accessible, and consistent, enabling a more positive user experience and avoiding harm from use (ISO, 2020).

According to ISO (2020), by putting these interaction principles into practice and following the related general design advice, consumers of those goods can avoid usability issues like:

- Additional steps that are not necessary as part of the task;
- deceptive information;
- inadequate user interface information;
- unexpected responses of the interactive system (including those leading to harm from use);
- navigational restrictions;
- ineffective error recovery.

This standard provides seven broad principles which encompass a 65-point checklist that interaction designers can go through in their design process. These guidelines cover a wide range of topics, including first impressions, aesthetics, accessibility, responsiveness, and even those that deal with dark patterns (see Chapter 5.4.1), such as 5.1.4.2, which states that defaults should be avoided in situations where they might deceive the user (Brooks, 2021). Even though it does not mention ethics directly, it certainly suggests using these principles also to have a morality check on your designs on top of everything. Of course, these standards can not be expected to make design more ethical; what makes design more ethical is the intentions of the designer, and those intentions can be influenced through good knowledge of the craft, well education on the tools and values of the craft, and effectively standardization of the craft

to some extent. These standards provide that last part of the equation to a designer who is already well-trained and aware of their responsibilities.

* * *

Another critical point to talk about is regulation. Other design fields like industrial design, or especially architecture, are highly regulated worldwide. It is even required to hold a license to start working as an architect in most countries. Although for interaction design, the field of regulatory action is much more open. Nevertheless, legislation certainly has an impact on interaction design's output as well as some aspects of its practice. The qualified practitioner is required to be knowledgeable about the specifics of applicable laws and to follow them when acting ("Legal Issues," 2018). These laws can be summarized in three main points:

- **Data Protection**

On May 25th, 2018 General Data Protection Regulation (GDPR) came into effect in the Europe, harmonizing privacy laws among the member states, and this started a wave of privacy protection laws among the world. According to UNCTAD (2021), currently 71% of the countries worldwide have some level of privacy legislation.

- **Health and Safety**

Prior to engaging in an activity, it is necessary to analyze the risks involved and take steps to reduce those that are detected, as required by both common sense and health and safety regulations ("Legal Issues", 2018). Although, regulations in this aspect usually only include laws regarding work safety but, not so much concerning the user or the environment safety.

- **Accessibility**

Currently, 21 countries have accessibility laws in effect with the addition of Hong Kong and the European Union also having their own regulations in this area (WAI, 2018).

Every industry begins untamed and eventually matures. For the safety of society, the hazardous ones are regulated. Laws promote innovation; they provide designers with the limitations they require to create solutions (Monteiro, 2019). These limitations provide designers with a starting point; they are not perfect, but, as Monteiro says, this industry is a maturing one in which regulation is starting to catch up. The author highly encourages all interaction designers reading this work to go through the aforementioned standards and regulations to learn and know about the limitations and requirements of their craft. If a design decision or solution requires the designer to look for loopholes or ways around these regulations and standards, then that action is already unethical. interaction designers are in the position to keep a check on these aspects and, as Papanek (1985) puts it, be the gatekeepers.

5.4 Industry Examples

Finding examples of how interaction design is being used in unethical ways is not difficult. Design is a tool, and like every tool, it can be used in an ill-mannered fashion. In this case, it is a tool that can influence emotional responses and create or shape behaviors, which makes it quite powerful. Using user data maliciously without their consent to profile them or advertise more products, making essential parts of an application pay-to-unlock, and misleading or manipulative user interface designs are all ill-mannered. Evidently, not all immoral acts of design are created equal. Designing the interface of a military rocket launcher that will be used to kill people and designing the interface of an e-commerce website so that the users are tricked into spending more can not be put on the same moral scale. Nevertheless, both cases are acts that go against the essence of design.

According to Chris Kiess (2019), UX as a field is impacted by self-driving cars with automated safety features, social media privacy concerns, addictive app design strategies, and manipulative design tactics. However, there has not been anything done to list and organize the various ethical problems in this field. As more technology is produced, the sorts and nature of ethical challenges in

the profession will undoubtedly continue to change and intensify. Hence, it is important to document and exemplify the rights and wrongs of what has been done so far in this field. Usually, unethical cases occur in situations where profit or business agenda is put above the user's needs, but these cases can also inherently exist within the job itself. Designers need to be aware of conflicting needs. Businesses do need to make a profit; thus, we need to be realistic when taking into account commercial requirements, legal requirements, and how the ecosystem affects the design. However, when such circumstances damage a user, take advantage of them, or make their use of the product difficult, then there is malpractice by the designer. Kiess (2019) defines these acts as ill or misdirected intent.

In this chapter, dark patterns — the term that is used for unethical interaction design practices on the interface level — will be explored; afterward, the ill or misdirected intent will be exemplified associated with the defined three main values: society, environment, and economy. In the end, with the help of industry examples, the reader will be able to see how all of the mentioned aspects of unethical design come together.

5.4.1 Dark Patterns

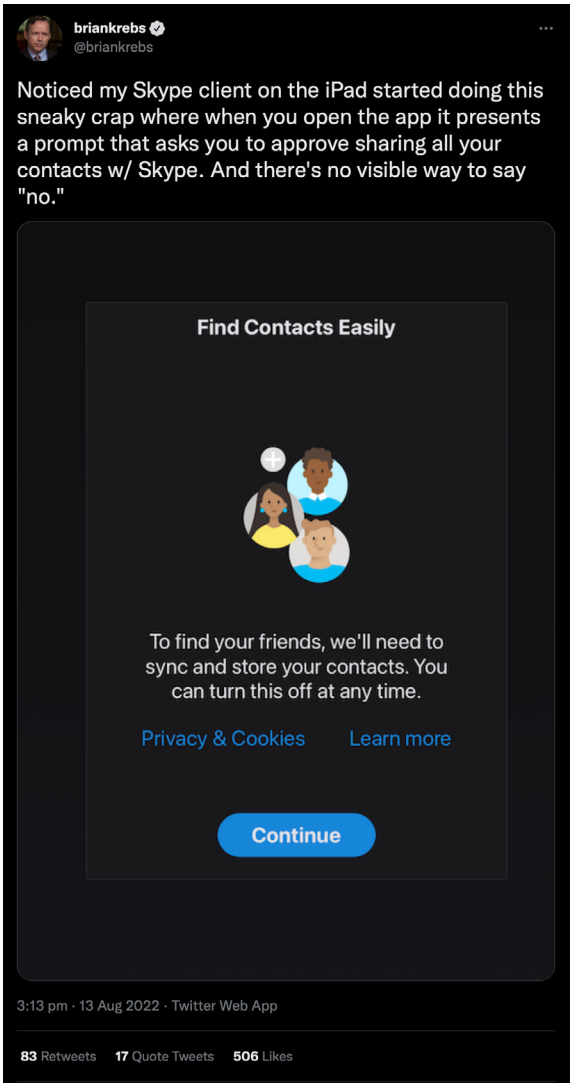
Dark patterns are also called deceptive design elements; as the name suggests, they are design elements that are put into a system to trick, mislead, or manipulate the user. Some of these design elements are used so often that users take them for granted. The best example of this is, requiring credit card information for a free trial of a subscription-based service. The aim here is to make the user agree to pay for the service when they just want to try it and hope they will forget to cancel their subscription. Some websites/apps even make the cancellation process harder than it should be or cancel the free trial altogether if the user wants to opt out, all in the hopes that they can keep the customer in their system and charge them for the subscription. Even though it is a morally questionable design decision, this kind of action has become commonplace with the increasing amount of subscription-based services that we use day to day, and the users have no other choice than to accept it. Oth-

er examples of dark patterns include tricking the user into sharing their personal data like emails, manipulating them into paying for products/services that they do not need and shaming the user for not acting as the website pushes them to act. A more detailed taxonomy of dark patterns can be seen in Figure 5.

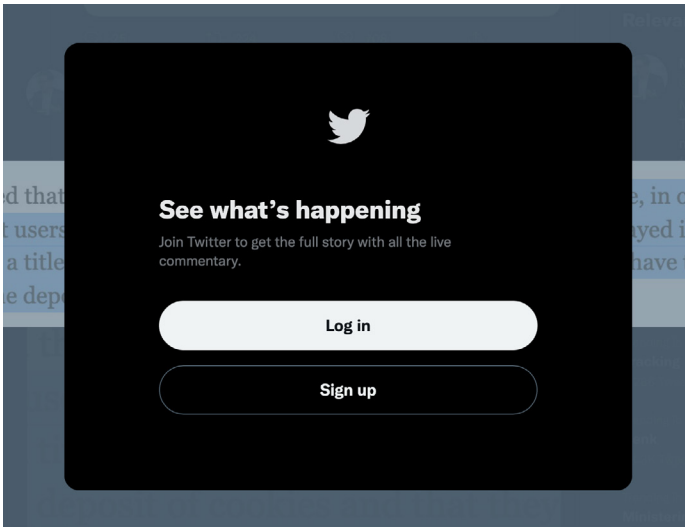
Category			Type	Explanation
Information Asymmetry	Active Misleading Actions	Misleading Information	Testimonials of Uncertain Origin	Misleading users by providing them false, confounding, deceiving, or exaggerated information
			Scarcity	Misleading users by providing them false, confounding, deceiving, or exaggerated information
			Friend Spam	Misleading users by providing deceiving information
			Fake Countdown Timers	Misleading users by providing them fraudulent information
			Limited-time Messages	Misleading users by providing them deceiving or exaggerated information
		Misleading Presentation	Trick Questions	Misleading users through wording
			Misdirection (Visual Interference)	Misleading users by using visual interference
	Passive Misleading Omissions	Hiding Information	Price Comparison Prevention	Misleading users by withholding clear and comprehensible price information
		Delaying Provision	Hidden Costs	Delaying price information provisions
Free Choice Repression	Undesirable Imposition	Pressure Imposing	Pressured Selling (Repeated Popup Dialogs or Confirm Shaming)	Imposing pressure on users through repeated inquiries or wordings that make users experience guilt or shame
		Forced Acceptance	Sneak into Basket	Compelling consumers to accept the uninvited products by directly placing the products in their shopping carts
			Privacy Zuckering (Easy to Register)	Compelling consumers to accept the undesirable subscription by using tricks that thrust them towards subscriptions
			Forced Continuity (Hidden Subscription)	Compelling consumers to continue the subscription by renewing their membership subtly
			Bait and Switch	Compelling users to accept a particular arrangement by manipulatively navigating them away from their original objective regardless of their willingness
			Disguised Advertisement	Compelling users to view an advertisement by manipulatively navigating them away to a location that they did not expect to reach, regardless of their willingness
	Undesirable Restriction	Restricting Specific Users	Forced Action (Enrol to Access, Pay to Skip, and Accept to Access)	Restricting unpaid or unsubscribed users from options such as content access or skipping of advertisements
		Restricting Specific Actions	Roach Motel (Hard to Cancel)	Making specific actions such as unsubscribing more complicated than needs to be

Figure 5: Taxonomy of Dark Patterns by Leiser & Yang (Francisco et al., 2022, p. 32)

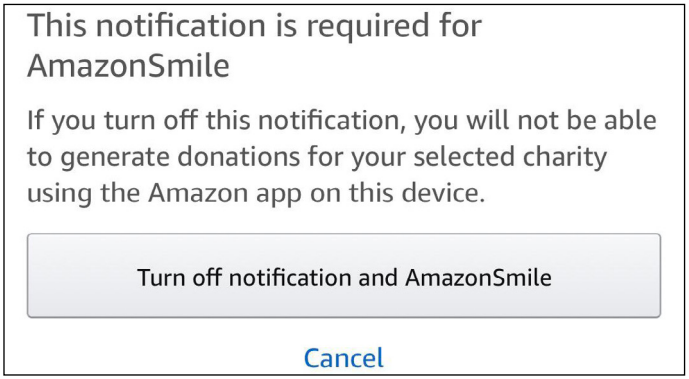
Harry Brignull (n.d.) is a UX specialist who created a website in 2010 that is wholly dedicated to tracking and filing dark patterns on the world wide web, especially the big companies like Google, Facebook, Amazon, Microsoft, and Apple. The website is called www.deceptive.design, and here are some good examples from there:



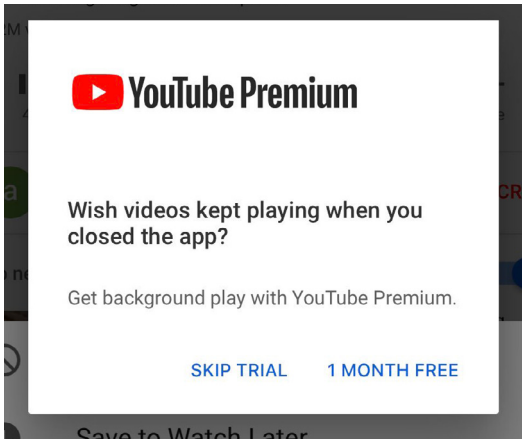
Skype pushes users to agree to share their contacts by not providing an option to refuse (Brignull, n.d.).



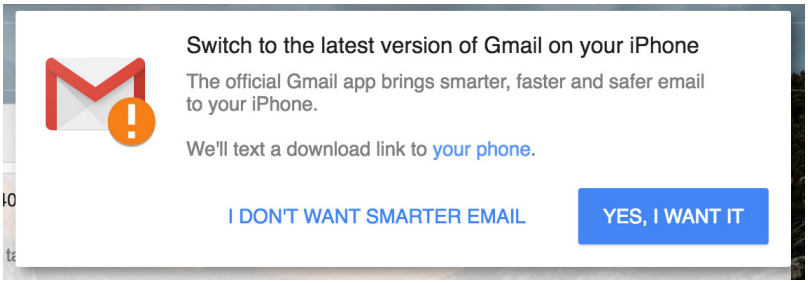
Twitter makes it mandatory to log in or sign up to read tweets or threads on its website (Brignull, n.d.).



Amazon requires users to allow marketing notifications for them to make donations to its charity programme (Brignull, n.d.).



YouTube makes the options confusing on its subscription pop-up (Brignull, n.d.).



Google uses "confirmshaming" to deter consumers from declining to opt out. The wording of the refuse option is intended to shame the user into complying (Brignull, n.d.).

In April 2022, the EU issued a report on dark patterns, looking deep into these design elements. They overview dark patterns in detail, classify unfair and manipulative practices, do a legal assessment and measure the impact of these practices and lastly suggest remedies which include regulation and business and consumer level response. They also provide a lot of examples from the industry. This report indicates that dark patterns are an acknowledged problem by the governing bodies, and soon this ill aspect of interaction design will also be regulated.

5.4.2 Society: Meta and TikTok

The impact of social media on society is well observable, and it keeps evolving. Meta influences society in many ways as the company owns most of the main social networking platforms like Facebook, Instagram, and WhatsApp. Meta's both Facebook and Instagram use metrics to attract attention and drive traffic. These metrics can be the number of likes or comments a post has achieved or the number of followers the user has. Meta utilizes these metrics to increase engagement and induce addictive behavior in the users.

In 2016, Facebook gave a researcher working for Cambridge Analytica, which supported the Trump campaign, access to information on up to 87 million Facebook users (Chang, 2018). This was one of the biggest scandals regarding Facebook to date, and it was both about the amount of data the company has on its users and the design flaws that allowed the leak.

TikTok is another highly addictive and behavior-altering social media platform. It has been made popular by its short video format and numerous challenges that circulate on the app. They become viral, and the app's algorithm shows this content to the users it deems favorable. According to Mitchell Clark (2022) from The Verge, numerous lawsuits have been filed against TikTok by parents whose children they claim died from choking while attempting the "blackout challenge" after the app showed them videos of others doing it. According to a lawsuit brought against the corporation in June, the challenge "encourages users to choke themselves with belts, purse strings, or anything similar till passing out," and at least seven particular youngsters died while doing it last year.

Evidently, all these platforms hugely influence our society on an individual and public level. The design elements can change and create behavior, influence our mood and emotions, access a huge amount of information and data on their users, and even influence the polls in a vote.

5.4.3 Environment: Apple and Amazon

According to Terry Nguyen (2019) from Vox, Amazon had announced in April 2019 that it was planning to provide Prime members with free one-day shipping. Additionally, it has relaxed the minimum purchase limit, enticing users to purchase a variety of inexpensive products with free one-day shipping. It is also a pledge that may have a significant impact on the environment by cutting the delivery time down. Amazon contracts with a variety of shipping companies, such as UPS, the US Postal Service, and several independent businesses employing hired carriers. These hired carriers use vehicles that are less spacious than freight vehicles, which limits

the number of packages they can transport and forces them to go back to the warehouse to pick up more. Customers are encouraged to anticipate speedy delivery services because they have access to options like free one- or two-day shipping, frequently ignoring the expenses to people and the environment that make it possible. Interaction designers play a crucial role in designing the interfaces and the experiences customers interact with to make these decisions and turn these anticipations into habits.

In an article on Apple's "Batterygate," Tony Romm (2020) writes that when Apple's infamous throttling practices were revealed in 2017, consumers were shocked and accused the company of trying to pressure them into purchasing newer, more costly gadgets. As iPhone users discovered that some of their older devices slowed down after updating to a newer version of iOS, the issue made national headlines in the US. In December of that year, Apple acknowledged the tactic and said it had modified its tech a year earlier to prevent some older models from abruptly shutting down or encountering other issues because of heavy loads on their out-of-date batteries. Thirty-four different states quickly launched an investigation into the situation, and later they succeeded in getting Apple to pay a fine and make a legal pledge to future transparency. This example directly concerns interaction designers and engineers due to the use of the operating system to manipulate user action. Moreover, it is under the environmental section because of the apparent planned-obsolescence practices. Although it can be said that this action affects all three aspects, it changes customer behavior towards an upgrade-oriented phone usage; therefore, it impacts society; consequently, it also makes the users spend more and impacts the economy.

5.4.4 Economy: Uber and Facebook

Uber was one of fifteen companies ProPublica (2018) discovered in the last year that was buying Facebook advertising and targeting a particular demographic. Ninety-one job postings by Uber were discovered during the ProPublica investigation into Facebook's ad policies. 87 of those 91 advertisements were exclusively aimed at

males, one at women, and three didn't target sex. Advertisers can discriminate in ways that could be against the law, thanks to that level of targeting. One way Facebook and other digital companies allow advertisers to target some people while excluding others is through sex profiling. It is based on extensive data provided by users and inferred from their web activities. According to a 2016 ProPublica study, Facebook permits advertisers to reject users based on race. Additionally, a study from 2017 described how Facebook job ads could exclude older employees. These examples, by design, influence the job market in unethical ways. Its consequences can be predicted to impact the financial abilities of people from different demographics, impacting the overall economy and society.

* * *

In conclusion, there are many examples that can portray the immoral usage of interaction design within the industry. These examples span from interface-level dark patterns to more structurally impactful levels like environmental, social, and economic. Different dark patterns can contribute to these three aspects and also certain dark patterns can be the product of them. It can be observed that some of the biggest companies that employ and rely on interaction designers, use and utilize these unethical practices which change lives and behavior, impact societies, pollute the environment, and destabilize the economy. Under these circumstances, it is very crucial for every interaction designer to be well informed. Employers, educators, and regulators all have responsibilities in this regard, but as the holder of the profession, designers themselves have the greatest.

DISCUSSION: HOW SHOULD IT BE?

6 Discussion: How should it be?

In this chapter, the author will give his opinions in light of the research provided. The epistemology of the thesis was to create a narrative in which the reader can learn point by point from an expansive array of research. Starting from defining ethics and interaction design, then moving on to how these two elements combine, and in the end, showing the reader how this combination looks and works in practice. This narrative was designed to inform the reader about the subject at hand and make them come to their own conclusions. Through learning about the theory and embracing it, the practical side of design becomes more based and aware. As the author, finding my position in this matter was also the most crucial point of this project. To clarify this position for the reader, this section will serve as a vessel where the author explores the ties between all the written theories and discusses how the situation should or could be.

Starting from the beginning, it can be summarized that the most appropriate way of judging the morality of interaction design is through normative ethics. This field of ethics judges the practi-

tioners with the notion of oughts. What a designer ought to do and not to do. A designer ought to advocate for the user; they ought to do no harm and do good. If the acts are to be simply laid out:

- The *obligatory act* of a designer would be advocating for the user, and doing good;
- the *forbidden act* would be designing products that do harm;
- the *suberogatory act* is to not inform or influence fellow designers regarding their responsibilities;
- and the *supererogatory act* is to be active, spread the awareness and influence more design decisions.

How can doing good or doing harm be defined in this context? To answer this question, we should first decide which of the main two normative ethics theories fits the case of design the best. And to figure this out, we need to look within the design itself, and the divide between the two theorized design paradigms. Here the author would like to highlight the similarities between the binary divide of normative ethics and design theory. As mentioned before, if design is viewed as a process of reflection in action, problems become genuinely unique. If design is viewed as a rational problem-solving process, problems may be considered as being ill-structured. This ideation can be linked to the distinctions between utilitarianism and deontology; utilitarianism is more pragmatic and analytical in its approach to problem-solving, whereas deontology emphasizes responsibility and intent and is more reflective in its approach to action.

It is possible to approach design from a utilitarian side due to designers being more result and goal-oriented. It is easy to miss the process and the intent if we only look at the consequences of the action, and it is also much harder to measure and calculate the moral implications. Design is a profession of processes; the way design is taught, and most design methodologies are constructed can serve as an example that design decisions can not be stripped of the process that shapes them. Therefore, the author strongly disagrees with the idea of approaching design with utilitarianism. Also, through this

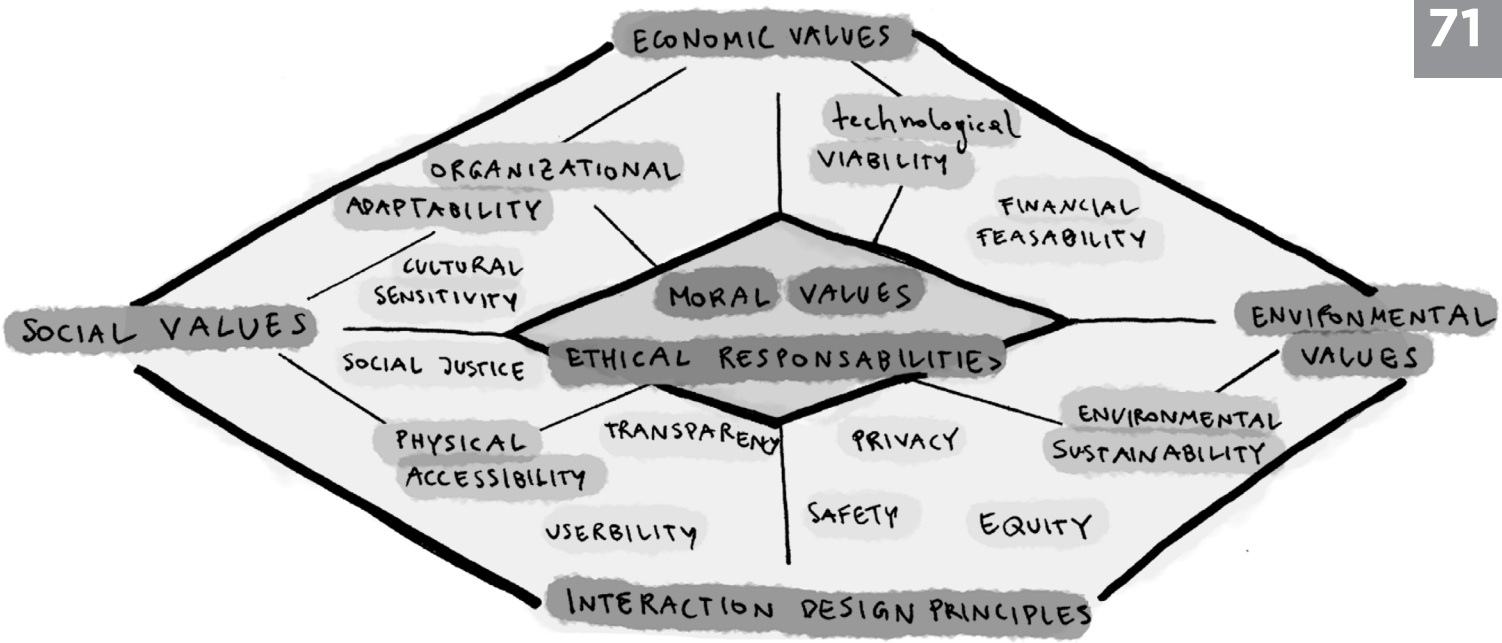
statement, it can be argued that defining design as a rational problem-solving process, although an effective approach, can be misleading and deficient. Due to its pragmatic and strict positioning, this paradigm fails to acknowledge the human factor in the design and misses the point of design being a very human process. Under these circumstances, it is also impossible to assign moral values to design where the designer can be held responsible. For that reason, a search for an adequate approach is necessary.

The paradigm of reflection-in-action suggests that the design process should be one in which the designers reflect on their steps and acts. Consequently, reflecting on their craft and, most importantly, on their intent. Deontology argues that one should look at the intention to make a moral judgment. To be more moral is to be more reflective on the actions, therefore the intentions. Hence, the intentions of the actions taken by designers influence the morality of those acts. In summary, the author suggests that this approach to design is the one that has the best fit for moral evaluations, which makes it also the best paradigm to define design with due to the fact that design should not exist without moral evaluations.

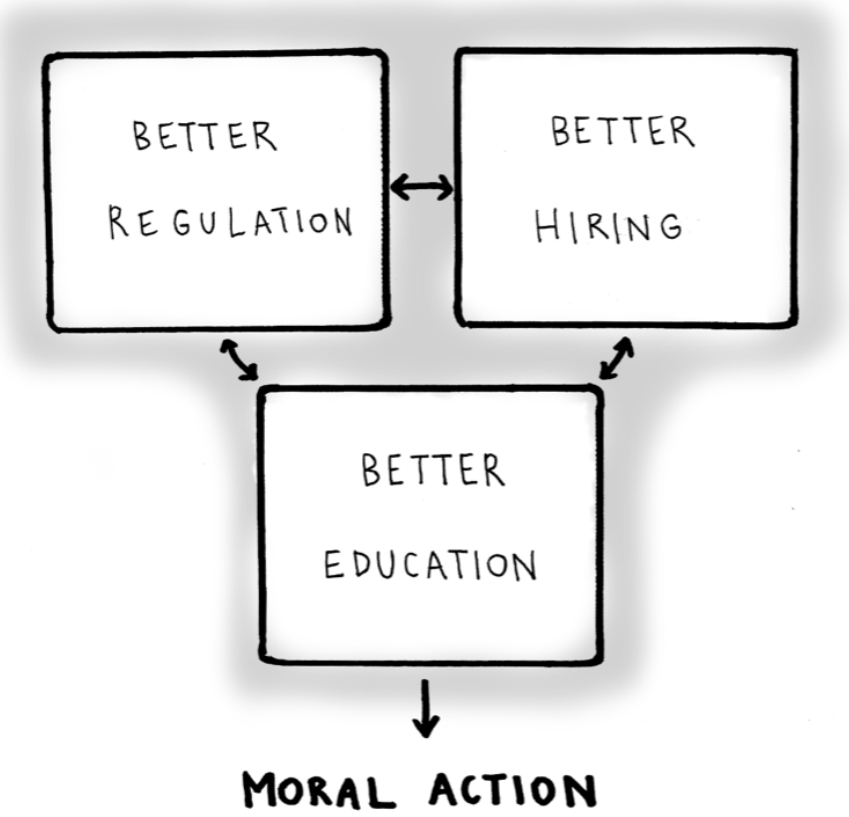
Now that the relationship between the chosen paradigm and the ethical theory has been established, we can discuss what defines doing good and doing harm. According to Future of Design Education (n.d.), technological viability, financial feasibility, organizational adaptability, environmental sustainability, cultural sensitivity, physical accessibility, social justice, and ethical responsibility are all criteria by which designers must evaluate their performance. The author would suggest categorizing all these aspects in an atom-like structure under the main title *Design Values* as seen on the next page, this title would include one central element — the Nucleus being *Moral Values (Ethical Responsibility)*, and it would include three main orbital elements — *Social*, *Environmental*, *and Economic* values that influence and interact with the Nucleus. In order to make this structure more specialized for interaction design, the aforementioned seven points which need to be addressed when conducting ethical interaction design would also be added into the equation as another orbital element. It is worth mentioning that some of these seven points

already coincide with the criteria provided by the Future of Design Education. This categorization will give designers a checklist of values that needs to be addressed when making design decisions. The virtues that the designers perform within these values would paint a picture of what the intentions are and also what the implications and possible consequences of those intentions are. Seeing the bigger picture by exploring the intentions and their effects on the design values, the designer would have a better understanding of how to do good and how not to do harm.

Design Values



Through this knowledge, designers can establish a methodology to evaluate decisions from a moral standpoint. However, as explored in Chapter 5, we can not expect everything from the designers themselves. After all, there are so many more factors in play when it comes to design and creation of a product or service. The designer can do their best but still fail due to aspects that are not in their control. In this case, the author recommends a cycle of betterment. First and foremost, with better education, the designers will learn the craft better and apply their skills more ethically. Design is not just an act of creativity or self-expression; it is an act of decision-making. With a more extensive design education where the design values are the cornerstones, both hard and soft skills would hold equal importance, and designers would learn how to question, measure, and evaluate their work and intentions. Secondly, better hiring would call for companies and design teams composed of people with diverse backgrounds. This would guarantee views from different perspectives and that no voice is silenced or forgotten. Thirdly, better regulation established by communities composed of better-educated designers and consequently better-acting companies would ensure that the design values are protected on a legal level, which would effectively stop any bad players from harming the established system. The system in which all three aspects of betterment support and add to each other towards the multiplication and standardization of moral action in design.


BETTER
REGULATION
BETTER
HIRING
BETTER
EDUCATION
MORAL ACTION

6.1 The Guideline

"The people affected by our actions are always more important than our intent."

(Monteiro, 2019, p. 82)

This standardization in moral action would also possibly initiate the creation of a widely acknowledged and followed code of ethics for designers. A code of ethics that is accepted and applied by all the designers can seem like a far reach. However, there are examples from other industries, and the best example can be the medical scene. Doctors take a Hippocratic oath before they can start practicing their profession, which basically frames what they ought to and ought not to do in an ethical and medical context. Their medical license can be taken away if they do not follow their oath or violate it. This level of accountability should also be observed in the design profession. As Future of Design Education (n.d.) puts it, the design industry requires a code of ethics that goes beyond the obvious virtues of truthfulness, transparency, efficacy, and safety. In the modern world, ethical design must take into consideration knowledge of and accountability for its context, implications, power, and privilege. The project must respect people's privacy and religious values, preserve the ecosystem, and recognize the interdependence of social, cultural, physical, technological, and economic systems.

Even without reaching the proposed level of standardization and unified action, it is possible to find different kinds of manifestos, principles, and guidelines regarding the ethics of design from various authors and websites. In this thesis, the principles proposed by Cooper et al. have been mentioned due to their direct relevance to interaction design. Another example of this is the ethical design pyramid shown in Figure 6, created by ind.ie (n.d.), a non-profit organization pursuing ethical design and technology. Their approach focuses on the human element and is worth mentioning in this context.

Figure 6: Ethical Design Pyramid (ind.ie, n.d.)

As a result of the discussion and this thesis, the author would like to present his own suggestion for a code of ethics that can be used by interaction designers and all designers alike. It consists of eight principles as follows:

THE ETHICS CODE OF INTERACTION DESIGN

1 THE DESIGNER IS RESPONSIBLE AND ACCOUNTABLE FOR THE WORK THEY DO.

2 THE DESIGNER TAKES TIME TO ASK WHY AND SELF-REFLECT.

3 THE DESIGNER WORKS TO PRESERVE OR IMPROVE THE FOUR MAIN VALUES.

4 THE DESIGNER DOES NOT USE THEIR SKILLS TO INFLICT HARM.

5 THE DESIGNER CAN AND WOULD DEFINE A PROBLEM, AND IF IT IS WORTH SOLVING.

6 THE DESIGNER CAN MEASURE AND CALCULATE THEIR IMPACT.

7 THE DESIGNER STRIVES FOR FEEDBACK AND ACCEPTS CRITICISM.

8 THE DESIGNER CAN REPRESENT A DIVERSE COMMUNITY AND SET OF VALUES.

CONCLUSION

7 Conclusion

This thesis was concerned with the ethical and social positioning flaws in design practice, particularly in the area of interaction design. This thesis aimed to investigate how ethics play a part in design and how this impacts industry-wide decision-making. Designers' influence over and shaping of products, the environment, society, and human lives have all been assessed, raising questions about the political character of the design profession. The author investigated the ethical theory and evaluated the interaction design field to look for areas of convergence. Using examples have helped to establish the status quo of the literature and the industry in this regard. Additionally, the leading causes of immoral design decision-making have been brought into question.

For design to be ethical by nature, all the factors that prevent it from being so should be modified or removed. The author's goal in writing this thesis was to bring attention to the fact that while this subject is frequently ignored, it actually merits the highest care. With the establishment of a narrative, this work aims to become an informative and guiding book for its readers. As an interaction

designer, the author designed this narrative to be encouraging and supportive of fellow designers. The outcome of the thesis was a self-reflection and positioning, as well as a discussion of the theory that has been researched and evaluated. Also, different methods of thinking and a set of principles have been created to support the arguments made. These methods of thinking can be observed in the establishment of connections in between normative ethical theories and design paradigms. Deontology has been chosen as the best theory of ethics to approach design decisions and problem-solving. Moreover, within design theory, the paradigm of reflection-in-action prevailed as the more morally responsible understanding of design. Overlapping aspects of the chosen ethical theory and design paradigm have been discussed, resulting in an efficient thought process and a code of ethics for interaction designers.

The future of this research can include extensive qualitative research in which interviews are conducted with many design students, teachers, employers, and regulators. These interviews would help to understand more in-depth how designers learn about and work on ethical situations. Observations and workshops, including the trial of the proposed systems, would be another aspect to work on in the future. Moreover, the code of ethics that has been created can be turned into a visual aid (website, app, or print) to increase the reach and feedback. Certainly, more research and thought experiments can be conducted to expand on this thesis. The time constraint has been the main shortcoming of the project, and arguably with more time and effort more satisfying and based results can be achieved.

Finally, as the author, I would like to say to all designers who are reading this, always ask why, know when to say no, and never stop questioning your work.

References

Angwin, Julia, and Terry Parris Jr. "Facebook Lets Advertisers Exclude Users by Race." ProPublica, October 28, 2016. https://www.propublica.org/article/facebook-lets-advertisers-exclude-users-by-race.

Angwin, Julia, Noam Scheiber, and Ariana Tobin. "Dozens of Companies Are Using Facebook to Exclude Older Workers from Job Ads." ProPublica, December 20, 2017. https://www.propublica.org/article/facebook-ads-age-discrimination-targeting.

Ashcraft, Catherine, Brad McLain, and Elizabeth Eger. "Women in Tech: The Facts (2016 Update)." NCWIT.org, May 13, 2016. https://ncwit.org/resource/thefacts/.

Bagnara, Sebastiano. Theories and Practice in Interaction Design, 2006.

"Best Jobs in America." CNNMoney. Cable News Network, May 9, 2017. https://money.cnn.com/pf/best-jobs/2017/list/index.html.

Beyer, Hugh, and Karen Holtzblatt. *Contextual Design Defining Customer-Centered Systems.* San Francisco, CA: Morgan Kaufmann, 1998.

Brignull, Harry. "Deceptive Design - Hall of Shame." Deceptive Design – formerly darkpatterns.org. Accessed August 18, 2022. https://www.deceptive.design/hall-of-shame/all.

Brooks, Paul. "Why UX Should Still Care about International Design Standards." UX Booth, March 2, 2021. https://www.uxbooth.com/articles/why-ux-people-should-care-about-international-design-standards/.

Carlsson, Bertil. "Ethical Situations in Service Design: An Explorative Study of How Service Designers Handle Ethically Loaded Situations During the Design Process," 2011.

Caro del Castillo, Andres. "Ethics in Design; an Option to Achieve Environmental and Social Consciousness," 2015.

Chang, Alvin. "The Facebook and Cambridge Analytica Scandal, Explained with a Simple Diagram." Vox, March 23, 2018. https://www.vox.com/policy-and-politics/2018/3/23/17151916/facebook-cambridge-analytica-trump-diagram.

Clark, Mitchell. "The Tiktok 'Blackout Challenge' Has Now Allegedly Killed Seven Kids." The Verge, July 8, 2022. https://www.theverge.com/2022/7/7/23199058/tiktok-lawsuits-blackout-challenge-children-death.

Comunian, Roberta, Alessandra Faggian, and Sarah Jewell. "Winning and Losing in the Creative Industries: An Analysis of Creative Graduates' Career Opportunities across Creative Disciplines." *Cultural Trends* 20, no. 3-4 (2011): 291–308. https://doi.org/10.1080/09548963.2011.589710.

Cooper, Alan, David Cronin, and Robert M. Reimann. *About Face 3 the Essentials of Interaction Design*. Indianapolis: Wiley Publishing, 2007.

Coyne, R. "Logic of Design Actions." *Knowledge-Based Systems* 3, no. 4 (1990): 242–57. https://doi.org/10.1016/0950-7051(90)90103-O.

"Critical Design: Moma." The Museum of Modern Art. Accessed June 29, 2022. https://www.moma.org/collection/terms/critical-design.

Dorst, Kees, and Judith Dijkhuis. "Comparing Paradigms for Describing Design Activity." *Design Studies* 16, no. 2 (1995): 261–74. https://doi.org/10.1016/0142-694X(94)00012-3.

Dorst, Kees, and Lambèr Royakkers. "The Design Analogy: a Model for Moral Problem Solving." *Design Studies* 27, no. 6 (2006): 633–56. https://doi.org/10.1016/j.destud.2006.05.002.

Driver, Julia. *Ethics: The Fundamentals*. Malden, MA: Blackwell Publishing, 2007.

"Ethical Design." Ind.ie - Ethical Design Manifesto. Accessed August 24, 2022. https://ind.ie/ethical-design/.

European Commission, Directorate-General for Justice and Consumers, Francisco Lupiáñez-Villanueva, Alba Boluda, Francesco Bogliacino, Giovanni Liva, Lucie Lechardoy, and Rodriguez de las Heras Ballell, Teresa., Behavioural study on unfair commercial practices in the digital environment: Dark patterns and manipulative personalisation: final report § (2022). https://data.europa.eu/doi/10.2838/859030.

Faiola, Anthony, and Sorin Adam Matei. "Enhancing Human–computer Interaction Design Education: Teaching Affordance Design for Emerging Mobile Devices." *International Journal of Technology and Design Education* 20, no. 3 (2009): 239–54. https://doi.org/10.1007/s10798-008-9082-4.

Florman, Samuel C. "Moral Blueprints." *Harper's*, no. 257, 1978.

Friedman, Batya, Peter H. Kahn, and Alan Borning. "Value Sensitive Design and Information Systems." *The Handbook of Information and Computer Ethics*, 2009, 69–101. https://doi.org/10.1002/9780470281819.ch4.

"Global Design Survey 2019." Dribbble, 2019. https://dribbble.com/global-design-survey-2019.

Guiltinan, Joseph. "Creative Destruction and Destructive Creations: Environmental Ethics and Planned Obsolescence." *Journal of Business Ethics* 89, no. Suppl 1 (2009): 19–28. https://doi.org/10.1007/s10551-008-9907-9.

Hatchuel, Armand. "Towards Design Theory and Expandable Rationality: The Unfinished Program of Herbert Simon." *Journal of Management and Governance* 5, no. 3-4 (2001): 260–73. https://doi.org/10.1023/A:1014044305704.

"Interaction Designer: Job Description, Skills & Salary." Bestaccreditedcolleges.org, January 20, 2022. https://bestaccreditedcolleges.org/articles/interaction-designer-job-description-skills-salary.html.

ISO 9241-110:2020(EN) Ergonomics of Human-System Interaction — Part 110: Interaction Principles." ISO Online Browsing Platform (OBP), 2020. https://www.iso.org/obp/ui/#!iso:std:75258:en.

Jacobs, Sofie, Bart Cambré, Marieke Huysentruyt, and Annick Schramme. "Unraveling Belgian Fashion Designers' High Perceived Success: A Set-Theoretic Approach." *Journal of Business Research* 69, no. 4 (2016): 1407–11. https://doi.org/10.1016/j.jbusres.2015.10.116.

Kaplan, Jeffrey. *"Full Ethics Course *Condensed* - Part 2."* July 14, 2022b. Educational video, 19:14. https://www.youtube.com/watch?v=dpmD6NuM_r0.

Kaplan, Jeffrey. *"Full Semester Ethics Course *Condensed* into One Lecture."* June 9, 2022a. Educational video, 22:58. https://www.youtube.com/watch?v=DLCUn6h7qRo.

Kiess, Chris. "The Good, the Bad and the Ugly of Ethics in UX Design." Medium. Prototypr, March 5, 2019. https://blog.prototypr.io/design-ethics-c739bcf511fe.

Kohler, Andreas R. "Material Scarcity: A Reason for Responsibility in Technology Development and Product Design." *Science and Engineering Ethics* 19, no. 3 (2012): 1165–79. https://doi.org/10.1007/s11948-012-9401-8.

Kolko, Jon. *Thoughts on Interaction Design: A Collection of Reflections*. Burlington, MA: Morgan Kaufmann Elsevier Publ., 2011.

Kries, Mateo, Amelie Klein, Alison J. Clarke, Scott Felicity Dale Elliston, Dori Tunstall, Alice Twemlow, Pak Imam Buchori, et al. Victor Papanek: The Politics of Design. Weil am Rhein, Germany: Vitra Design Museum, 2018.

Lavanga, Mariangela, Marco Ferdinando Martorana, Ellen Loots, and Esther Nieboer. "Designed for the Job? an Empirical Study on the Determinants of Design Graduates' Work Choices." *Cultural Trends* 30, no. 4 (2021): 321–37. https://doi.org/10.1080/09548963.2021.1951599.

"Legal Issues." The Standard Interaction Design Process, June 2, 2018. https://thestandardinteractiondesignprocess.wordpress.com/process/specify-user-requirements/legal-issues/.

Merrill, Jeremy B., and Ariana Tobin. "Facebook Is Letting Job Advertisers Target Only Men." ProPublica, September 18, 2018. https://www.propublica.org/article/facebook-is-letting-job-advertisers-target-only-men.

Monteiro, Mike, and Vivianne Castillo. Ruined by Design: How Designers Destroyed the World, and What We Can Do to Fix It. Fresno, CA: Mike Monteiro, 2019.

Nguyen, Terry. "Amazon's 1-Day Shipping Is Convenient - and Terrible for the Environment." Vox, October 16, 2019. https://www.vox.com/the-goods/2019/10/16/20917467/amazon-one-day-shipping-bad-for-environment.

Papanek, Victor. Design for the Real World. London: Thames & Hudson, 1985.

Rep. 2019 Product Design Hiring Report. InVision, 2019.

"Rethinking Design Education." Future of Design Education. Accessed August 18, 2022. https://www.futureofdesigneducation.org/.

Romm, Tony. "Apple to Pay $113 Million to Settle State Investigation into iPhone 'Batterygate'." WP Company, November 18, 2020. https://www.washingtonpost.com/technology/2020/11/18/apple-fine-battery/.

Simon, Herbert A. "The Structure of Ill Structured Problems." *Artificial Intelligence* 4, no. 3-4 (1973): 181–201. https://doi.org/10.1016/0004-3702(73)90011-8.

"Summary of Adoption of e-Commerce Legislation Worldwide." UNCTAD, December 14, 2021. https://unctad.org/topic/ecommerce-and-digital-economy/ecommerce-law-reform/summary-adoption-e-commerce-legislation-worldwide.

The Role of Design Ethics in UX. YouTube. NNgroup, 2021. https://www.youtube.com/watch?v=cySX_CmFGcc&t=186s.

Thomassen, Aukje, and Oguzhan Ozcan. "Standardizing Interaction Design Education." *Computers and Education* 54, no. 4 (2010): 849–55. https://doi.org/10.1016/j.compedu.2009.09.014.

"UX & UI Design - Toronto City Guide Ios App." BORNITE. Accessed August 15, 2022. https://bornite.net/work/toronto-city-guide-app.

van Gorp, Anke. "Ethical Issues in Engineering Design Processes; Regulative Frameworks for Safety and Sustainability." *Design Studies* 28, no. 2 (2007): 117–31. https://doi.org/10.1016/j.destud.2006.11.002.

"Web Accessibility Laws & Policies." Web Accessibility Initiative (WAI), March 21, 2018. https://www.w3.org/WAI/policies/.

"What Is Universal Design." Centre for Excellence in Universal Design. Accessed July 6, 2022. https://universaldesign.ie/what-is-universal-design/.

"What Is User Centered Design?" The Interaction Design Foundation. Accessed July 6, 2022. https://www.interaction-design.org/literature/topics/user-centered-design.

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