

ETHICS IN INTERACTION DESIGN

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Abstract

This paper seeks to provide a big-picture overview of current ethical standards in interaction design practice through the exploration of the research question: “what do we know about ethics in interaction design practice?”. We discuss the definition of what it means to be a designer—how inexperience in the industry can lead to digital exclusion, the complexity of design complexity, the reflective nature of design practice, and how collaborative design demands more social support. The intent of bringing such ethical issues in interaction design to light is to highlight how academic research strategies and the design industry can implement more inclusive methods into design practice that bring us closer to a “design for all” philosophy.

Introduction

Design is omnipresent; it is the environment we live in, the screens that entertain us, and the content we spend most of our time consuming. If design is everywhere and in everything around us, there must be some responsibility and accountability on the part of people who can create design for consumers.

By definition, design can be seen as a tool to decide among and inform choices of being that direct attention, create understanding, and motivate action.¹ Eli Blevis contends that the practice enables people to critically engage with design values, methods, and reasoning in ways that impact our collective futures.² With this definition, design may be broken down into three axes: people, art, and engineering.

1. **People:** the people aspect involves thinking about the human-centric components of a creative artifact such as whether they mimic real-life interactions and the ease

¹ Eli Blevis, "Sustainable interaction design: invention & disposal, renewal & reuse", in *Proceedings of the SIGCHI conference on Human factors in computing systems* (2007), 503.

² *Ibid.*, 503.

with which people understand it.

2. **Art:** the art portion focuses on the aesthetics of a product to evaluate its appeal to the user's naked eye, taking into consideration various elements including colour contrast ratios, typography, spacing, and layout.
3. **Engineering:** the engineering component centers around the invisible work that makes an interactive design element come to life as the more traditional software-focused aspect.

Designers are expected to utilize these three axes to create aesthetically functional interfaces.³

Within the creative process, designers should consider the diversity of users through personas and diversity of contexts through use case scenarios.⁴ The inception of any design should then always consider the emotional (people), aesthetic (art), and functional (engineering) needs of users.

Defining Interaction Design

The ethos of interaction design is about creating digital artifacts or environments which improve the qualities of user experience.⁵ Daniel Fallman illustrates this in a model known as the interaction design triangle, with design practice, design studies, and design exploration as its

³ John Zimmerman, Jodi Forlizzi, and Shelley Evenson, "Research through design as a method for interaction design research in HCI", In *Proceedings of the SIGCHI conference on Human factors in computing systems* (2007), 496.

⁴ Hua Dong, "Strategies for teaching inclusive design", *Journal of Engineering Design* 21, no. 2-3 (2010), 242.

⁵ Daniel Fallman, "The interaction design research triangle of design practice, design studies, and design exploration", *Design issues* 24, no. 3 (2008), 4.

extremes.⁶

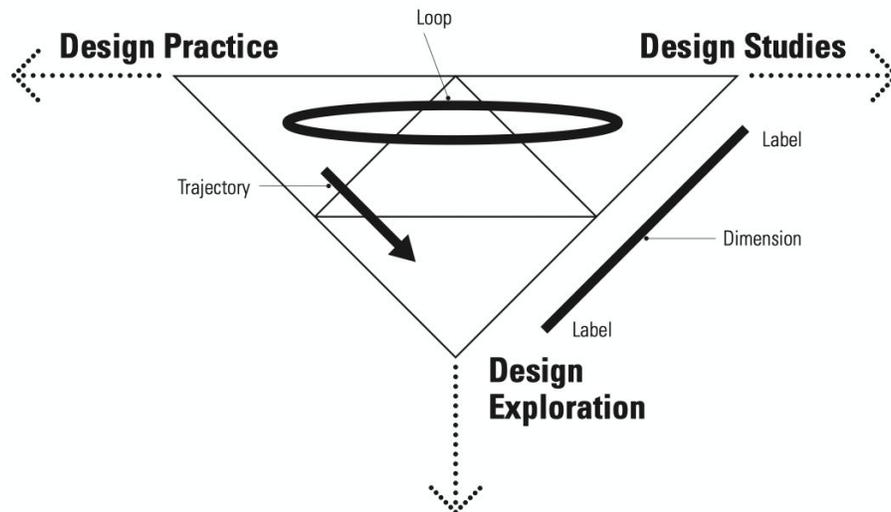


Figure 1: Interaction Design Research Triangle⁷

While the discipline is perceived traditionally as an engineering principle, its outward purpose is meant to reflect and influence people by shaping how users consume the designs and interactions displayed to them. Specifically, there needs to be a deeper concentration in how the use of digital artifacts mirrors the use of physical materials.⁸ Thus, in our defined axes of design, interaction design would stray closer towards people and art.

Design in the Context of Design Practice

Design practice refers to the act of creating artifacts outside of an academic context.⁹ One way to understand design within its praxis is to divide our perception of it into two worlds: the

⁶ Fallman, 5.

⁷ Ibid., 5.

⁸ Blevis, 508.

⁹ Zimmerman et al., 494.

realm of science, and the realm of design.¹⁰

1. The **realm of science**, or the real world, correlates to the physical environment we exist in.
2. The **realm of design**, or the artificial world, refers to an artificial environment that we interact with.

Both realms are similarly messy and complex. The real world demands a form of practical rationality regarding the limitations of what we can do in a physical environment. In contrast, the artificial world can solve problems through technical rationality since it has the advantage of existing only by creation. For the latter to exist, there has to be someone with a particular skill set responsible for creating the solutions to these problems in the artificial world. These creators are what we blanket as “designers”, holding the responsibility for manifesting creations within artificial environments that mirror or are similar to what people know from the physical world.

Who can be a designer?

It is inherently difficult to answer the question of “who can be a designer” considering the amorphous aspects of the term. As with the comparison between the real and artificial worlds, designers can exist and work in many capacities as long as they are producing artifacts. Bill Buxton captures how difficult it is to apply guidelines to being a designer with his sarcastic retort that anyone can be a designer because they select their own clothes.¹¹ The insufficiency of guidelines is favourable in practice because it lowers the entry bar into the design industry, encouraging the creative aspects of being a designer. However, not having a sturdy definition of “designer” is at the core of unethical design practices.

¹⁰ Erik Stolterman, "The nature of design practice and implications for interaction design research", *International Journal of Design 2*, no. 1 (2008), 59.

¹¹ Zimmerman et al., 493.

In the context of accessibility in interaction design, products are commonly developed by able-bodied designers that lack the participatory experience or actual experience to design for disabled people. Rather, designers are often critiqued for viewing disabled people as objects to be designed for, as opposed to including them in the conversations or collaborations to design for disabled people despite having the experience to design more accessible user interactions. Hamraie highlights that the Human-Computer Interaction (HCI) community should be including disabled participants in design research to best produce results that shape their everyday experiences rather than to objectify disabled experiences and hire exclusively non-disabled designers.¹² While the term “designer” is seemingly undefined, the notion that designers focus on abled user experiences is very much prevalent. Abled people can easily be accepted as designers but disabled designers do not have the same ease of acquiring the credit or label. This in turn sets up a dichotomy in which abled designers can create for the disabled user, and reinforces structural ableism in HCI.

We must consider how ethical current design practices such as the vagueness of the profession and lack of variety in experience are a result of designer ignorance as well as the current nature of the design industry. As such, the industry enables design practice from the goal of a design for all philosophy as it exposes possibilities for ignominy from a lack of defining a designer’s skill set or neglecting to account for different user experiences.

Inexperience Causes Digital Exclusion

In design practice, designers approach the goal of accessible and inclusive interaction design by asking how their creations can maximize user reach. Universally accessible interfaces

¹² Aimi Hamraie and Kelly Fritsch, "Crip technoscience manifesto", *Catalyst: Feminism, Theory, Technoscience* 5, no. 1 (2019): 7.

are important because they have a high impact on the social lives of users with disabilities.¹³ If there are no defined guidelines or legislation on design practices or what it means to be a designer, inexperienced designers are ill-equipped to “design for all”. This results in the spread of ignorance among designer communities. The first step to reducing ignorance is to educate inexperienced designers and provide a set of guidelines that encourage professional design learning within the HCI community.¹⁴ This is exceptionally important as HCI plays a vital role in provisioning social opportunities to people with disabilities, and that includes maximizing the design process to account beyond a generalized experience. This could start with more participatory experiences for designers to better understand how to design for disabled people. Technology built with current design practice standards by non-disabled designers are inherently created with some traditional form of sociocultural ableism. Designers masking their creations as innocuous work under the guise of “doing good” with lack of understanding for all users reinforces epistemic violence within design practice.¹⁵ To avoid creating ignorant work indefinitely, designers can seek social support or collaboration with more experienced colleagues, participate in simulations to understand their products from varying user perspectives, and conduct reflective design research of their own practices. Thus, design

¹³ Sergio Sayago, and Josep Blat, "About the relevance of accessibility barriers in the everyday interactions of older people with the web", In *Proceedings of the 2009 International Cross-Disciplinary Conference on Web Accessibility (W4A)* (2009), 105.

¹⁴ Julio Abascal, and Colette Nicolle, "Moving towards inclusive design guidelines for socially and ethically aware HCI", *Interacting with computers* 17, no. 5 (2005): 484.

¹⁵ Anon Ymous et al., ““I am just terrified of my future”—Epistemic Violence in Disability Related Technology Research”, In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems* (2020), 3.

inexperience would inevitably cause design exclusion just from ignorance to push design farther from being truly accessible, and farther from reaching a “design for all” philosophy. Designer ignorance can also affect the accessibility of their designs especially around non-visual interactions. In the case of visually impaired users, designers must balance the higher cognitive load and loss of graphical helpers to convey their interactions in a similar form.¹⁶ Lack of experience as a designer thus poses major ethical concerns from failure to consult peers and resources, such as senior designers, community resources, and collaborative projects. Designers without sufficient experience will only increase the gap of design exclusion within the practice.

Design Practice Hurts Design Research

The primary focus of design practice is to craft commercially successful products, which can occur at the expense of building artifacts that provide insights for research-specific questions.¹⁷ This introduces a contradictory cycle between focus on design practice and design research, where advancing one will always impair the development of the other. The advance of design practice, which is currently insufficient and very much necessary to fix the problem of inexperienced designers, impedes on the ability for design researchers to perform data analysis on how to provide resources that help designers gain experience. Sanders divides design research into design-driven or research-driven methodologies with either an expert or participatory mindset.¹⁸ In an expert mindset, the researcher perceives a design problem from a designer’s experience and acknowledges users as subjects for a designer’s creations. In a participatory mindset, researchers perceive a design problem from a user’s experience, where users are seen as

¹⁶ Rakesh Babu, Rahul Singh, and Jai Ganesh, "Understanding blind users' Web accessibility and usability problems", *AIS Transactions on Human-Computer Interaction* 2, no. 3 (2010), 74.

¹⁷ Zimmerman et al., 494.

¹⁸ Liz Sanders, "An evolving map of design practice and design research", *Interactions* 15, no. 6 (2008): 14.

partners or collaborators in the design process. However, design research for the purposes of improving design practice must come from a place of deep understanding of design practice in the first place.¹⁹ While design research focuses on understanding the details, design practice focuses on the creation of the details, and interaction design focuses on the overall experience. Experimental testing could be a possible medium between design practice and design research, through controlled experiments could mainly be used in practice to measure interaction usability that does not assist design research in understanding the big picture required to explore interaction design to a greater extent.

The Complexity of Design Complexity

Design complexity can be defined as the measurement of how difficult it is for users to interact with digital artifacts, particularly in the previously mentioned artificial world. Design complexity hones in on specific, intentional, or non-existing realms, differing from science complexity as the latter concentrates on universal and existing matters.²⁰ Design complexity cannot be measured objectively because it has to be analysed by the designer's subjective experience of complexity. The issue with complexity in interaction design is that its inability to undergo an objective analysis poses ethical concerns because it is inevitably biased to a certain degree. Thus, design complexity has to paradoxically be analyzed through the designer's subjective experience.

It is similar to building a product and evaluating new features using the value-complexity matrix. The value of a product is often measured based on company incentive. As a developer, complexity is measured on a scale of individual skill—inherently subjective but individualized to

¹⁹ Stolterman, 55.

²⁰ Ibid., 59.

the creator. In design, the value is measured by its improvement to user experience. In contrast, complexity is also measured through its impacts on user experience. If a design task is too simple, it is deemed boring by the designer.²¹ Complexity gives design entertainment and reward values for the designer, though sometimes at the expense of the users. These values could be monetary, skills-based, or purely to challenge the creativity of the “artist”. Designers can demonstrate such selfishness through overconcern for the aesthetic needs of the user—a placebo for the designer’s actual desire to produce artifacts of their subjectively “high” visual quality. However, the definition of an aesthetic product concerns design research because it is fundamentally more complex than graphical content. Aesthetics in interaction design encompass how an artifact looks and feels, while also concerning the aesthetics of an interaction—how it flows, how it is used, and how it is displayed.²² For instance, the on-screen complexity of an email software for older adults could be viewed as a challenge to a designer visually but interaction aesthetics such as reducing burden on the user’s memory can become a problem too large to solve, causing design paralysis.²³ We need to find an ethical approach to design complexity that treads the fine line between design boredom and design paralysis, where the designer is professionally challenged but not burdened by the neverending complexities to consider.

Design Practice is Currently Reflective

There is a certain reflective nature to design practice, where designers will look back on actions that were taken to improve methodology rather than considering all possibilities when

²¹ Stolterman, 58.

²² Fallman, 8.

²³ Peter Gregor, and Anna Dickinson, "Cognitive difficulties and access to information systems: an interaction design perspective", *Universal Access in the Information Society* 5, no. 4 (2007), 61.

making such decisions.²⁴ Perceiving design in its reflective state was first acknowledged by Donald Schön to improve the research-to-practice cycle.²⁵ If we consider how to maximize the usability of a “back” button, there are so many ways to approach the visual and interaction aesthetics. The process of shifting design practice from reflective to proactive begins with better design research that educates designers on the right exploratory questions to pursue. Interaction design researchers are becoming more prevalent in the industry as they uphold research within the practice.²⁶ Designers will gain the expertise to use engaged knowledge and make proactive decisions through a gradual implementation of asking the right questions during the exploratory process of creating a new digital artifact. If designers are not integrating all types of users or considering maximizing accessibility, it insinuates accessibility as an afterthought when it should be integrated at the beginning of the design process.²⁷ Design researchers have the duty to educate industry designers on how to craft proper research questions—it is just the mere exercise of thinking of what to explore that improves proactivity.²⁸

In their work and in service to any product, designers also have to consider the technical sustainability debt of their creations, as in the long-term maintenance of technical infrastructures and especially software systems.²⁹ The shortcuts in the design decisions of a technical product

²⁴ Zimmerman et al., 495.

²⁵ Ibid., 495.

²⁶ Fallman, 6.

²⁷ Molly Follette Story, "Maximizing usability: the principles of universal design", *Assistive Technology* 10, no. 1 (1998): 4.

²⁸ Fallman, 7.

²⁹ Stefanie Betz et al., "Sustainability Debt: A Metaphor to Support Sustainability Design Decisions", *University of Huddersfield* (2005), 2.

for a quicker outcome in the short-term is actually cost inefficient from the issues that will arise long-term. Betz et al. considers sustainability debt as a generalization for technical debt, and deconstructs the importance of sustainable software in society into five dimensions:³⁰

1. **Economic:** similar to financial debt and measures the time and costs of developing the software.
2. **Environmental:** considering the ecological resources and burden imposed during the development of the software.
3. **Individual:** measuring the level of stress imposed by the software.
4. **Social:** how software improves ease of communication.
5. **Technical:** overall maintenance of the software commonly evaluated in four categories such as corrective, adaptive, perfective, and preventative.

Design research is principal in breaking down the various dimensions of sustainable debt with designers asking research questions to address and weigh the costs of their decisions. The current state of design practice inevitably forces technical debt due to failure in design reasoning behind choices that overlook these dimensions. The impacts of designer ignorance can lead to an erosion of trust within society for their individual work and for the product that they contribute to. With deeper consideration for the technical sustainability of designs, interaction design practice can be more proactive which reduces the stem of inconsiderations users are faced with when using a product.

Collaborative Design Requires Social Support

The collaborative experience of design practice demands a necessity of social support, particularly since the discipline requires groups of people to create for groups of users. While our previous definition of interaction design calls for design to influence user experiences, another

³⁰ Ibid., 3.

approach is to perceive the discipline as “creating user experiences that enhance and extend the way people work, communicate and interact”.³¹ In that sense, the technical support of interaction design is not as important as the experiences that designers have working together to build a product. It is better that the product or design takes in all inputs because designers have to assume that in design psychology, a user will approach the interaction in every way imaginable. The best way to consider all use and edge cases is to maximize the design perspectives brought to the table. If an issue arises for the user, designers also have to trust there will be other user interactions designed to fix the input that went wrong.³² There has to be trust in assuming users are capable of managing their interactions with a design themselves.

If designers can focus on the work they are producing in an environment with other designers to bounce ideas off of, the collaboration reduces bouts of inexperience, assists in spreading complexity among the team, and forces designers to think about their decisions proactively. In design practice, we naturally risk building human activities into the product, using it as a guide to design any product, such as by mirroring human interactions through digital interactions.³³ Understanding how human activity is represented in design can help us analyze our own abilities to think about a design problem, quality of our design thinking, and whether we are using the right resources to convey our solutions. The interference of human activity is ethically concerning until we have a clear picture of managing the social experience of designers working together so that they feel supported and are not fighting for floor control. Otherwise, design practice merely demands collaboration without crafting proper social support between designers. Collaboration among designers is a viable solution to inexperience and ignorance,

³¹ Robertson, 49.

³² Ibid., 57.

³³ Ibid., 49.

though the contradictory ignorance to develop such collaborative environments reinforces the detrimental cycle of inexperience in design practice.

Conclusion

As such, interaction design as a practice poses many ethical concerns by way of designer inexperience, the dichotomy of design practice hurting design research, the complexity of design complexity, the reflective nature of design practice, and how design demands collaboration and social support. To achieve a “design for all” philosophy where interaction design can be inclusive and accessible, there needs to be a deeper consideration for the environments and skill sets of designers—the people who are crafting user experiences, and users—the people who are experiencing the digital artifacts. Where human activity is bleeding into the creation of designs, human empathy needs to bleed into the thought process behind the designs so interaction design can better mirror the realm of science in the artificial world. In the end, what we know about ethics in interaction design practice is similar to how design practice currently hurts design research. Ethics in design is hurting the research of ethics in design as the industry struggles to find a medium between asking questions and creating more artifacts for the sake of creation.

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