4. Ethical dimensions in interaction design

James Postell

4.1 Areas of concentration in interaction design

> ***Interaction Design (IxD) is the design of interactive products and services in which a designer's focus goes beyond the item in development to include the way users will interact with it*** **(Interaction Design Foundation, 2024).**

By the 21st century, designers, researchers, and university programmes began exploring the design of user interfaces (UIs) for computers and digital systems which led to pioneering work in graphical user interfaces (GUIs). This background is a basis for one area of concentration in IxD. Let's consider, both briefly and broadly, other areas of concentration to establish a contextual boundary and focus for examining the ethical dimension in IxD.

- *User Interface* (*UI*) was collaboratively developed by Microsoft and IBM to replace DOS in the 1980s. At the current moment UI centres on the study and design of digital interfaces and

systems, focussing on *human interface, learnability*, *accessibility, ethical data handling, user privacy, user-adaptability,* and *user empowerment*. UI needs to be *accessible* and *learnable* by diverse populations and those with disabilities.

- *Human Computer Interaction* (*HCI*) is a study and practice to improve the quality of user-interaction with computers, and it embraces ethical themes of *accessibility* and *learnability*. HCI was made popular by Stuart K. Card, Allen Newell and Thomas P. Moran in their 1983 book *The Psychology of Human–Computer Interaction* presenting benchmarks and *empathetic perspectives* that include behaviour concepts of *interaction*.
- *Digital Interaction Design* (*DIxD*) is a subsection of IxD that focusses on designing experiences within digital platforms, including websites, apps, dashboards, software, and user interfaces related to digital interactions, information architecture, and user flows. Ethics specific to DIxD include *conviviality, ethical usage of AI,* and *digital user-experience*.
- *Interaction Design* (IxD) coined by Bill Moggridge and Bill Verplank in the 1980s, has received contributions from many thinkers, authors and designers including Dan Saffer, Brenda Laurel, Helen Sharp and Alan Cooper in promoting the research and design of user-interaction themes and furthering the craft and tools for IxD designers to be better equipped to make appropriate connections between people.
- *User Experience* (*UX*) coined by Don Norman in 1995 examines broad ethical values and focusses on the study of how people behave regarding their interaction with projects (Norman, 2009). UX primarily concerns itself with designing human experiences, creating *intuitive, user-friendly systems* and *interfaces* where people interact with technology.
- *Visual Communication and Design* (*VCAD*) is an area of concentration in IxD that requires knowledge in *visual theory*. Areas include visual theory, typography, graphic communication, and digital media.
- *Service Design* (*SD*) is a field where designers create sustainable solutions and optimal experiences for both customers in

unique contexts and any service providers involved (Interaction Design Foundation, 2022). SD was influenced by the work of Phil Kotler in the early 1990s, to improve *productivity, user experience, and quality of services*. *Conviviality*, *social and environmental sustainability*, and *user-satisfaction* are ethical values in SD.

- *Performance Design* (*PD*) is a multidisciplinary area that focusses on the study and design of interactive performances, exhibits, and objects. Tethered to PD are *user-experience values*.
- *Participatory Design* (*PD*) is an inclusive area of concentration that broadly embraces HCI and is influenced by the work of Susanne Bødker among others. At the current time, PD extends into themes of research and offers a toolbox for designers and users in IxD.
- *Human Factors* (*HF*) research embraces scientific studies focussing on human attributes, capabilities, and performance which include anthropometrics, physiological systems, ergonomics, behaviour psychology, and more.

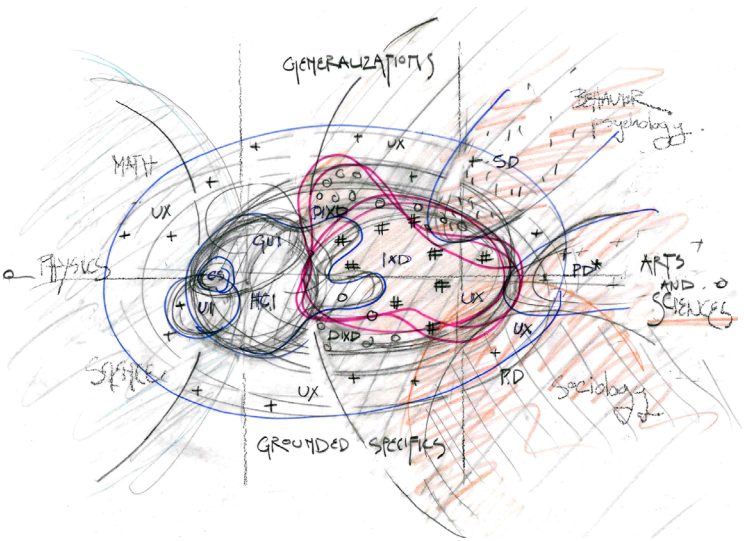


Figure 1.
Areas of concentration and overlapping relations in IxD.

IxD utilizes goal-oriented design methods concerned with satisfying the needs and desires of the users of a product or service (Cooper, 2007). IxD embodies physical and spatial works, as well as smart and digitally interactive projects. It is not surprising that publications,

webinars, designed output, and academic programmes are diverse and that clustered areas of concentration and applications of ethics in practice are equally diverse.

4.2 Ethical thinking

Ethical thinking is rooted in the *actions, values* and *aspirations* of designers, makers, and users committed to ethical *doing*. *Ethics* in a professional or disciplinary realm refers broadly to *a code of conduct* or *correct behaviour* within a relatively narrow scope of activity. A definition of *ethics* that aligns well with the thesis of this chapter comes from the Oxford Dictionary of Philosophy «ethics is a branch of philosophy and tethered to concepts involved in practical reasoning, which include good, right, duty, obligation, virtue, freedom, rationality, choice» (Oxford Dictionary, 2024).
Ethical dimensions have broad, external relations in diverse fields. Some dimensions have internal relations within specific disciplines. We refer to those linked to IxD as internal to the discipline and embodying shared strategies, services, systems, and products aimed at reducing social inequalities, promoting social democracy, well-being, and public benefits. Many themes are dependent upon concepts of accessibility and learnability, supportive of DEI, and promote conviviality by connecting local and global users through IoT and digital software. Ethical themes (external and internal) constitute a framework that shapes values and principles in IxD. Mapping the framework can visualize overlapping and autonomous concentration areas and networks. Figure 2 presents a personal and reflective diagram offering disciplinary renditions of ethical dimensions in CS, UI, HCI, IxD, DIxD, UX, PD and SD. As one can imagine, this exercise could be visualized differently by others to draw different conclusions. To this point, the diagram stands as an example in mapping ethical thinking and discinary renditions in IxD.

Areas of Concentration / *Artistic Proofs*	CS	GUI	VD	UI	HCI	DIXD	IXD	UX	SD	PD
Ethos	MICROSOFT IBM Logic	Graphic Emmersive Experience		Bill Moggridge	Personal Data Privacy	Advancement in AI A. Cooper	Bill Moggridge Bill Verplenik Dan Saffer	Don Norman Behavior Psychology	Honesty Trust	User-Centered Values
Logos	Coding Learnability Privacy	Graphic VD Appeal	Theories of Visual Perception	Emotions	Behavior Psychology Ease Intuition	Immersive Experiences	Learnability Adaptability Conviviality	Intuitive User- Friendly Systems DEI	Quality of Service DEI	Interactive Performances
Pathos	APPLE		Readability Emotional Appeal Human Factors		Learnability Accessibility	Information Architecture User Flow	Sustainability	User-Friendly Systems	Sustainable Solutions Productivity	

Figure 2. Disciplinary renditions through the lens of *ethos*, *pathos*, and *logos*.

4.3 Ethical dimensions shaped by areas of concentration

Areas of concentration in IxD serve as contextual boundaries in which *ethical principles* are applied to address what may be broadly considered *right* and *virtuous*. Ethical dimensions surface through the operations and procedures in disciplinary practice and shape the following disciplinary lexicon:

- *Accessibility:* promotes access and open systems integration, inclusion, and user-accessibility for diverse and disabled populations;
- *Adaptability:* embraces concepts of open platform design and include user-adoptability. Unique to DIxD are continuous system updates (ver. 2.12) based on user feedback loops and technological advancements. This promotes an evolving scenario minimizing concerns related to learning completely new applications which enables continuity of use through technological updates in digital software;
- *Conviviality*: embodies strategies and solutions that encourage *social interaction, inclusivity,* and *a sense of community*. Conviviality is a concept that refers to *creating positive social and collective experiences*;
- *Learnability:* user interface is directly tethered *to learnability.* The ethic is to maximize the *ease of learning* and create *intuitive UI, without complexity or disruption;*

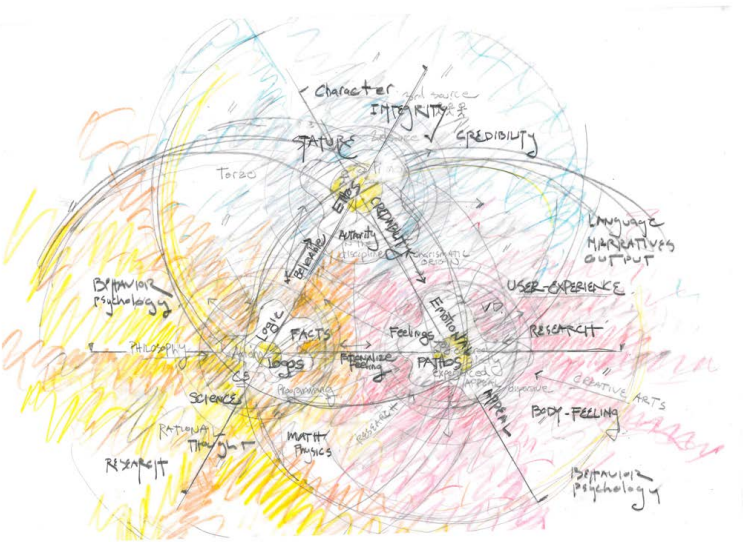
- *Personal Data, Security, and Privacy*: protection of personal data and privacy are obligatory in IxD, while the collection of data is often built into the system. Ethical dimensions include *privacy rights, user-consent,* and *user control* in the collection, use, and protection of personal data within digital systems;
- *Sustainability*: IxD considers *environmentally conscious practices* in broad, new ways. Designers strive to use eco-friendly materials, reduce waste, and consider works that minimize environmental impact and, equally importantly, *social sustainability* and *community*;
- *Honesty and Transparency:* designers strive to maintain *honesty* and *transparency* in their interactions with clients, other users, and suppliers. This includes providing information regarding the shared use of personal data, embedded cookies, and regulating efforts to protect intellectual rights and avoid dark matter, hacking, and misleading information;
- *Diversity, Equity, and Inclusion*: DEI in IxD embraces inclusive values and works to create *safe, inclusive, accessible,* and *accommodating spaces* for people of different cultural perspectives, abilities, needs, and ages;
- *Well-being and Safety*: designers have a responsibility to prioritize the safety, health, and well-being of their clients and users. Specific to IxD, this involves considering safeguards, personal settings, reporting mechanisms, and more.

Exploring ethical dimensions in IxD is challenging because the areas of concentration are diverse, and the discipline is not yet impartial to subjective constraints, sub-disciplinary nuances, and rhetorical influence. Due to these reasons, it is important to consider how rigorous rhetoric can influence IxD. «Rhetoric may be defined as the faculty of observing in any given case the available means of persuasion» (Aristotle, n.d).

4.4 Aristotle's artistic proofs: *ethos*, *pathos* and *logos*

Artistic proofs are persuasive tools used by someone to convince others regarding the validity of an argument or point of view (Aristotle, n.d.). The *proofs* are considered *artistic* because they were originally conceived as the result of *human skill* in making a persuasive argument, comprising three components. Aristotle understood that effective persuasion involves a combination of artistic proofs, referred to as the *Rhetorical Triangle*. By utilizing the *rhetorical triangle* in a persuasive manner, a speaker or writer might enhance their ability to influence an audience to accept a particular viewpoint.

Figure 3.
Artistic proofs and Aristotle's rhetorical triangle.



- *Ethos* refers to the ethical appeal, credibility, trustworthiness, and authority projected by the communicator. It aims to persuade others based on the perceived character, competence and integrity of the communicator.
- *Pathos* refers to the emotional appeal of rhetoric, aiming to evoke specific feelings or sentiments through persuasion using language, narratives, or design output. Pieter Desmet wrote in *700+ Product Emotions* «there are more than 50 different human emotions each with unique qualities and experiences. All of these can be felt when using consumer

products and there are an infinite number of reasons why products evoke emotions» (2018).

- *Logos* focusses on rational thought processes supported by evidence, and facts to persuade others. Logical reasoning is an essential *skill* for guiding arguments to anticipate or affirm agreement with a conclusion.

4.5 Influencers and influences in IxD

In IxD, well-known contributors include Dan Saffer, Gillian Smith, Jerod Spool, Bill Verplank, Alan Cooper, and Alma Leora Culén. In HCI, Jodi Forlizzi, Kim Goodwin, Jeff Gothelf, Bill Moggridge, Ron Wakkary, and in CS, Mark Weiser, are among the influencers renowned for their knowledge, leadership, and publications in IxD and are, among many others, responsible, for shaping its areas of concentration and disciplinary trajectory. Words of wisdom from earlier influencers remind us that there is significant impact on the development of a discipline due to the authority and status of the communicator (*ethos*); the emotional appeal received by the audience (*pathos*); and the logic and reasoning in the argument (*logos*). The following serve as example*s*.
«There are professions more harmful than industrial design, but only a few of them» (Papanek, 1971). Papanek emphasizes that an ethical responsibility lies within the field of industrial design, highlighting the potential harm that poorly designed products can cause. He calls for designers to be conscious about the consequences of their work, to prioritize sustainability, and to design for the well-being of people and the planet. «We must design for the way people behave, not for how we would wish them to behave» (Norman, 2010). Don Norman argues the importance of designing around the actions, attitudes and behaviours of people. The data gathered through feedback and user testing should not be wasted. Another quote sums up the practice of IxD and UX: «If a design is focused on the tasks the users have to perform and the way they behave, it will, indeed, be beneficial in the real world» (Norman, 2010).

> **Interaction design isn't about interaction with computers (that's the discipline of human-computer interaction) or interaction with machines (that's industrial design). It's about making connections between people through these products, not connecting to the product itself (Saffer, 2010).**

These quotes remind us that there is an ethical, societal duty in all design disciplines, including IxD. Let's now look to the academic programmes, associations, foundations, and publications in IxD and seek to understand their influence in the emergent discipline.

4.6 Diversity in academic programmes

The first academic programme to utilize IxD in a Master of Design degree was the School of Design at Carnegie Mellon University in 1994. Currently, there are approximately fifty two-year graduate IxD programmes throughout the world, many of which focus on HCI and IxD, while many others focus on DIxD, SD, PD, UX, UI, CS, digital media, and business management (Keystone).

Due to the challenges in highlighting one programme over another in such a diverse field, one might begin with the top *10 Design Schools in 2023* (QS World University Rankings, 2023). These include the Royal College of Art; University of the Arts London; Rhode Island School of Design; Parsons School of Design; Massachusetts Institute of Technology; Aalto; Pratt; Politecnico di Milano; Design Academy Eindhoven, and Tongji University. Interestingly, prominent IxD programmes do not parallel the top ranked design schools. However, they are diverse, stand independently, and include Simon-Fraser University (HCI) – which has contributed significantly to HCI/IxD with leadership from Ron Wakkary – as well as other prominent IxD programmes include Berkeley's MIMS; Georgia Tech's (MS-HCI) or MS in Digital Media (MS-DM); and MIT's Media Arts & Sciences (MAS) which began in 1984, and offers a range of options, such as a Master of Design-Interaction Design (MDes), Master of Human-Computer Interaction (MHCI), Master of Educational Technology and Applied Learning Science (METALS), and PhD in HCI. Clearly, graduate programmes

in IxD are distinct and housed in specialized areas of study with varied foci and curricula. Such a wide array of academic options and areas of concentration makes generalizing about disciplinary learning and concepts of ethical values difficult to study or conclude.

4.7 Influential IxD associations and foundations

The Interaction Design Association (IxDA) was created in 2003 and today has over 80,000 members. The association is composed mostly of designers, and promotes emerging IxD work. Each year, a celebration for designers, technologists, and community leaders is organized to discuss and explore themes in design, and to promote ethics by bringing thinkers together to concentrate on emerging issues. The theme of IxDA's World Interaction Design Day 2023 was *Ethics, Equity, and Responsibility.*

The Foundation of Interaction Design, created in 2002, is essentially an online resource with an academic focus that offers accredited instruction modules and open-access articles in IxD focussing in diverse areas of concentration that include UI, HCI, IxD, UX and more. The Foundation of IxD has had over 169,305 graduates to date (Carnegie Mellon University).

4.8 Design ethics in published works

Victor Margolin's *Ethics and the Design Professions* (2007) provides critical insights into the ethical challenges and considerations in design practices. Publications that address ethical values centred specifically on the discipline of product design include *Design for the Real World* by Victor Papanek (1971), and *The Design of Everyday Things* by Don Norman (2014). *About Face 3* by Cooper, Reimann, and Cronin *(2007)* is considered by many a seminal publication that presents the tools and values in IxD and DIxD. *Interaction Design: beyond human-computer interaction* (Sharp, Preece and Rogers, 2019), *and Ethical Issues in Interaction Design* (Robertson, 2005) are

examples of publications and papers that contribute to the trending discourse in ethics and values in design. Without going into specifics, they contribute to a deeper understanding of the ethical dimensions of IxD, which can be further categorized into areas of concentration.

4.9 What does ethics look like in IxD?

Challenges abound in referencing external and internal ethical dimensions in an emergent discipline where disciplinary knowledge is clustered and ethical dimensions of *accessibility, adaptability, conviviality, learnability, privacy* and *data security,* and societal implications are not yet fully understood. Applications of ethical dimensions as well as concepts of *conviviality*, *emotional design* and *transparency* are currently trending with the aim of improving human conditions in the public and private spheres, CS UI, HCI, VD, IxD, DIxD, SD, PD, PD and UX are studied and practised in less autonomous structures and in more interdisciplinary, multidisciplinary, and transdisciplinary ways, thus blurring the lines of disciplinary ethics.

Using *ethos, pathos* and *logos* as a lens or framework to study the ethical dimension offers theoretical insight to the ethics of responsibility (Jonas, 2002); the roles of ethics in manufacturing, design activism, new materialism (Fox and Alldred, 2019); and newly discovered ethical challenges in the rapid emergence of digitalization and AI. Examining persuasive arguments is an important *first step* in learning IxD and examining its *areas of concentration*. It is necessary to generate a clearer understanding of the ethical dimensions, for instance, who is framing the arguments and how are they being delivered. Using the aforementioned definitions can be helpful to unify approaches across the spectrum of influencers and build solid knowledge throughout the ecosystem of IxD.

If influencers practise the application of Aristotle's rhetorical triangle, the collective discourse can be traced throughout the evolution of the ethical dimension found within the IxD disciplines. Conflicts can be identified, omissions and lack of considerations be questioned, and collective directions can be championed. Without surety of discernment towards an ethical dimension now, future technological

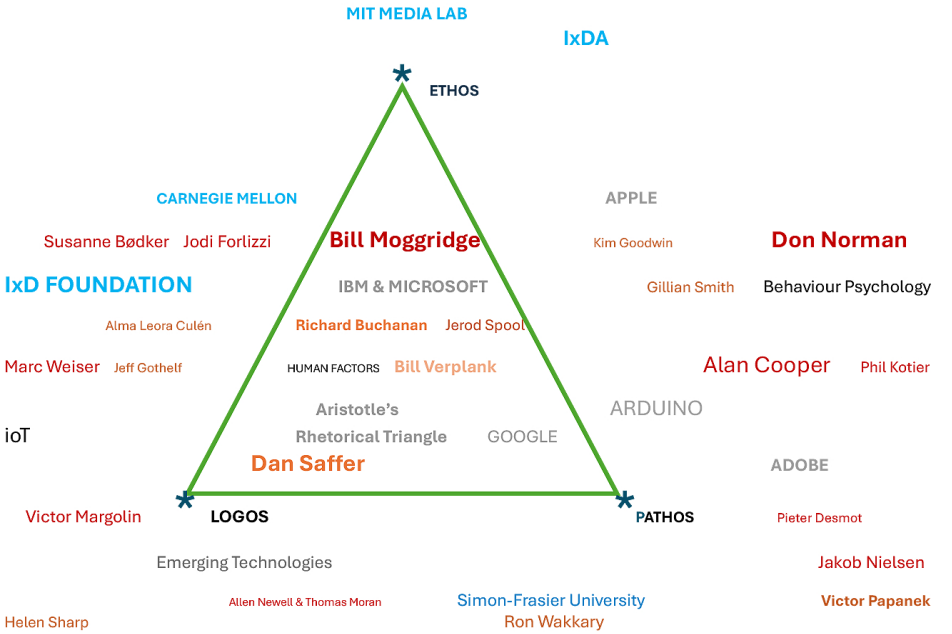


Figure 4.
Testing Aristotle's rhetorical triangle mapping of influencers.

and design developments are sure to become scrutinized, as we currently see with the advancement of Artificial Intelligence (AI) and its ethical impact.

4.10 Challenges for the future

The ethical dimension of a discipline is not an absolute condition nor is it based upon individual motivations or a higher truth (*poesis*). Rather, the ethical dimension of IxD is dependent upon the institutionalization of principles and values delivered through rational thought processes (*logos*), conveyed through influential communicators (*ethos*) and resonated in how it has been received by the audience (*pathos*). The influence of digital technologies, AI, and interconnected digital systems have brought unprecedented change to IxD transforming traditional paradigms of *good design* into new applications and operations that utilize apps, dashboards, agencies, personal data, cookies, and widgets in many processes and operations invoking unique interactions and ethical considerations. Designers, educators, and institutions should never need

reminding of the necessity to collaboratively contribute to the cultivation of shared social responsibility. The dynamic nature of the ethical dimension in IxD urges designers, students, and institutions to remain agile and responsive to an evolving societal, technological, and cultural context.

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