

Reimagining Design Education: Renewal and Transformation

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We live in a time when change is happening globally to an unprecedented extent. The awareness of the phenomena underpins the current discourse and research activities in design and design education. Many design educators understand the demand for change and are looking for new strategies to respond to it. The challenge is how to transform and renew design disciplines and its learning processes so that the next generation of designers can actively and responsibly promote change. Some educators are already focusing on the dimensions of change, namely, contemporary issues such as climate change and sustainable goals. Others are reflecting on how to deal with a world which is becoming more complex and uncertain and considering alternative ways of identifying and developing more sustainable solutions to cope with pressing complex issues. Others yet, are investigating the role of evolving technologies in design education and curricula development. Some are exploring the designers' role and their impact on the changing society. Faced with the complexities that define our present and future lives, design practices can intervene in different ways. In our view, design education must have the capacity to create connections and forms of collaborations amongst creative, human, and science research areas to address the complexities of our times and generate new knowledges, new experiences of experimentation, and new forms of collaboration. With such approach, design educators can support design students in becoming agents of change.

Keywords: dimensions of change; transformative design education; evolving technologies; societal impact

1 Introduction

Design is challenged by changes that happen at all scales from global phenomena to local contexts to individual paths and struggles. In the area of design education changes are present in various forms.



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Firstly, educators are now focusing on the design for contemporary issues such as climate change and sustainable goals with mixed methodologies and with a common scope, that is to tackle complex problems and look for designerly ways of proposing solutions from new services to alternative futures. Through a variety of approaches and methods - design fiction, speculative design, design thinking, research through design, user-centred design, to mention a few - educators promote the ability of designers to reflect on their practice and promote experiential learning and knowledge exchange also with other disciplines and stakeholders.

Secondly, design disciplines and practices present characteristics that seem to play a relevant role in the adaptation to changes. Interdisciplinarity, co-design and participatory design, collaboration, and teamwork, but also ideation and creativity are some of the typical practices and competencies that enable designers to respond on the one hand to complex problems and social constructs; and on the other to users' needs. The teaching of the ability to work together, critically analyse the contexts and promote the willingness to engage non-designers in the processes of innovation connects many realms of design and design education. Indeed, during times of the coronavirus pandemic the openness to the new and adaptations supported many innovations that are now becoming consolidated practices.

Thirdly, design educators experiment with new technologies that enhance the learning experiences and ultimately the design practices. The context in which design is taught – such as studios and laboratories - and the equipment and tools that are used – such as those for making models and prototypes - has always been a key component of the design discipline that incorporates the inductive process at the foundation of its learning. In the past decades, these places and tools evolved embracing the passage from analogue to digital, the availability of advanced manufacturing and now, the raising of Machine Learning (ML) and Artificial Intelligence (AI) programmes. The challenges posed by these rapid technological revolutions require design educators to understand, adapt and manage these changes. Indeed, design evolves partially with the technology that enables it and integrates it.

Lastly, designers aim to developing innovative solutions with a positive impact, may that be on a single category of people with particular needs, towards a community, or for a country's design ecosystem. It is always through a deep and respectful understanding of the context in which they operate that design educators embrace change, promote experimentation and innovation, elaborate new methods and tools, and develop new understandings and theories that enrich their teaching.

2 Change as a fundamental principle

From translation, movement and reciprocal mixing originates all that we, incorrectly, say to be: [and] because, in fact, nothing ever is, but everything becomes (Platone, 2009). Change is a fundamental principle: everything has its time and there is nothing on this earth that lasts forever. Every situation, every person, every event is in a constant flux. This is particular evident in our times: Muratovski argues that following the coronavirus pandemic, this dimension of change, constant flux and transformation has been amplified and accelerated:

“we reached a point in time when the world as we know it is undergoing a level of change beyond anything else that we have experienced in our lifetime. As a society, we have now reached the point of no return.”
(Muratovski, 2022)

The author describes the spirit of our times as the 'new normal', he means that all aspects of our lives are undergoing such radical change that we need to act fast to offer new solutions for the future and new life perspectives.

As Lorenzo Ciccacese observes (Ciccacese, 2021) many issues have to do with direct and indirect factors of change linked to our ecosystem. Direct factors are connected to the climate change; the destruction and fragmentation of natural or semi-natural habitats; the indiscriminate deforestation; the expansion and intensification of agriculture and animal farming; the increasing trade and tourism; the over-abstraction of natural resources and unsustainable production and consumption; the extinction of some living species linked to global warming; the ocean acidification. Indirect factors have to do with the exponential growth in demand for goods and services in developed countries and emerging economies; the population growth and pressures related to demographic dynamics; the impact on nature of technological innovation.

The Anthropocene, understood as the current geological age but also as our human condition on the planet (Bonneuil, Fressoz, 2019), presents humanity with a new and irreversible situation that has strong repercussions on our social, political and economical system: the growth of poverty, the increase of social inequalities on a global scale; the intensification of migrations; the exploitation of peoples and countries; the increase of social injustice and racism; the spread of war; the extent of an existential human condition dominated by anxiety and fear.

Faced with the multiple complexities that define our present and future lives, design can intervene in different ways, according to how we can conceive it. If originally design was focused on discrete artefacts for communication, manufacture and spaces, and then in the way in which we formulate business, think (Kimbell, 2011), methodologically work (Cross, 2006), or manage (Cooper, 2011), now design is facing multiple levels of complexities that require a wider intervention perspective.

"It's equally clear that design is expanding its disciplinary, conceptual, theoretical, and methodological frameworks to encompass ever-wider disciplines, activities and practice. As a result, design is either copious and being smeared as a viscous layer over the problems of the world, or what we call design is being stretched into an impermeable film expanding to keep in capital and consumption." (Rodgers and Bremner, 2019)

In other words, design can be strictly connected to the common-place notion that it solves all kinds of problems, or, alternatively, design must internalise the 'uncertainty of now' with the capability of facing it, observing it, documenting it, deconstructing it, interpreting it and transforming it constructively and collectively.

Given these premises, what can be the purpose of design education? How can design education guide the new generations to deal with the uncertainty, the contradictions and rapid changes of our time? What should the educational priorities be for our design universities? What is the role of educators and professionals? How does research contribute to build and imagine our futures?

There is a general consensus that university-based programmes need a comprehensive update and redirection, but there is no singular direction to take.

As Rachel Cooper argues, the horizon for 'the design school' has widened, design education needs to be not only based on the innovation needs of industry, but it must be supplied by research realised by

multidisciplinary groups addressing complex problems (Cooper, 2019). According to this vision the process of learning can no longer be understood as a transfer of a static piece of information, but it needs to become an act of generating something unknown and unpredictable.

As Morrison (2008) affirms:

“education could break with simple successionist cause-and-effect models, linear predictability, and a reductionist approach to understanding phenomena, replacing them with organic, non-linear and holistic approaches [...] in which relations within interconnected networks are the order of the day.”

This means that design education must have the capacity to create connections and forms of collaboration amongst creative, human and science research areas to address the complexities of our time and generate new knowledges, new experiences of experimentation, and new forms of collaboration. ‘Discipline-based’ education shifts to ‘issue- or project-based’ education (Rodgers and Bremner, 2019), and educators have the responsibility to mediate and facilitate the interconnections amongst different research areas, cultures and design skills.

From this perspective education can promote the creation of new sensibilities and extended competencies that can encourage a series of ‘translation processes’ among various cultures, multiple codes and languages, different perceptive modalities, and several media (Baule, 2017).

This means to recognise: the potentialities of language that undergo continuous change since language is an active force; the interpretative aspect of translation which consists of a ‘situated act’ (temporally, geographically, socially, and ideologically); the risk of producing misinformation, but at the same time the opportunity to create new significations beyond stereotypes or schemas; new ways to interact with or include the others beyond ourselves; and new possibilities of interacting with technologies (for example AI). This approach invites to consider the ethical dimension of translation as an essential model of reference to reconnect design and design education to the values of pluralism, diversity, hospitality and otherness.

3 Navigating complexity and uncertainty

In examining existing design education programmes, some contributors to this track explore the tensions between current curriculum content and the competencies and skills required to dealing with a world which is becoming more complex and uncertain. The growing challenges which demand citizens to consider alternative ways of identifying and developing more sustainable solutions to cope with pressing complex issues such as, planetary boundaries, immigration and inequality require distinctive skills. Working with others, creating spaces within which people can connect, and facilitating spaces that transform practices play a crucial part in developing such skills, highlighting the need of teaching collaboration practices in design subjects – learning how to collaborate, fostering shared responsibility and to develop students’ understanding and ability to work as part of a team. These observations resonate with a recent call to action by the International Commission on the Futures of Education in their report *Reimagining our futures together: a new social contract for education* (2021):

“...reimagining means working together to create futures that are shared and interdependent. The new social contract for education must unite us around collective endeavours and provide the knowledge and innovation needed to shape sustainable and peaceful futures for all anchored in social, economic and environmental justice...”

To aid such teaching, some institutions in the UK are introducing learning agreements or what is called by colleagues at University College London, a ‘Social Contract’ (Smith, 2023). This contract “involves students in discussing and agreeing on their ‘ways of working together’. It includes logistics [when and where to meet, how often, etc.] but also more ethical issues around being kind to one another, listening, being supportive, being honest, being accountable to one another etc”.

With the urgency to address issues around social, racial and environmental justice in the curriculum, such social contracts ought to be considering the positionality of participants in the respective learning environments. In learning environments in which diverse cultures, disciplines and generations come together to meet challenges we do not yet know of or understand, participants are recognising the need to develop the ability to navigate their way through uncertainty and complexity in their practice. Through reflecting on ones positionality and its influence on ones actions, one will identify spaces for inclusive interventions with the potential to transform participants’ experiences.

Acknowledging the importance of design-based interdisciplinary learning when thinking about live-changing design, identifying the difficulties students experience when collaborating across disciplines is a crucial aspect of curriculum design. One contributing author to this track concluded with the following recommendations: ensure good curriculum planning; provide prerequisite courses and ice-breaking activities; offer sufficient and appropriate professional resources and guidance. We would add the recommendation that the teacher’s role in interdisciplinary collaborations is to foster an enriching exchange. This is how we enable genuine change. We have to grow our teaching practices so that they can respond to evolving contexts in the institution, in policy, and in society. Sian Bayne’s description of the act of teaching in the *Manifesto for Teaching Online* seems very apt in this context:

“Teaching is a complex and highly contextual activity bringing together people, texts, images, locations, objects, technologies, and methods in many different ways. These gatherings are situated, multifaceted, emergent, and therefore unique, requiring us to question the notion of best practice and replace it with an openness to multiplicity and difference.”

(Bayne et al, p.4, 2020)

It is precisely this openness to multiplicity and difference that is critical in teaching design subjects in the 21st century, especially teaching design that crosses disciplines. We propose developing frameworks and conceptual tools that scaffold interdisciplinary collaboration and support students working as teams to imagine, design and inhabit spaces of experimentation, collaboration and reflection. Examples of such frameworks and conceptual tools were created during *Fuel4Design*, a large cross-cultural research and knowledge exchange project, jointly delivered by a consortium of leading design-educator-researchers from the Oslo School of Architecture and Design, Politecnico di Milano, ELISAVA and the University of the Arts London (2019-2022). Through a process of collaboration and co-creation with student cohorts, partners were developing, testing and implementing new approaches and resources to equip both, learners and educators with innovative and adaptable tools to imagine, perform and enact a plurality of futures by design. The relevance of

co-creation in higher education is not a new concept, and has previously been highlighted by Tatiana Chemi and Lone Krogh 'for a future that needs to strengthen human relationships and practices of sharing, the ability (or disposition) of creating a shared value in spite of differences is strategically fundamental' (2017, p. x).

In positioning their commentaries and analyses, many contributors to the education track refer to the context of the coronavirus pandemic. For example: colleagues from one university evaluated the co-design experience in an interdisciplinary, co-design-oriented university course with twenty-eight students from different disciplines: engineering, computer science, management, and design. The focus of the course was on practices facilitating the co-design process to generate innovative solutions for social impact. Their case study provides further critical reflection on interdisciplinary collaboration. The contribution of their study is to provide a new way of thinking for developing co-design teaching models. They claim that such approach "can integrate the expertise and skills of different disciplines into a collaborative and collectively intelligent team, thus improving the quality and efficiency of research results and providing better solutions to humanity's complex problems." *Design Justice* (Constanza-Chock, 2020) take such approach even further, advocating for 'going beyond recent calls for design for good, user-centred design, and employment diversity in the technology and design professions; it connects design to larger struggles for collective liberation and ecological survival'. Their approach to design is led by marginalised communities and one that aims explicitly to challenge, rather than reproduce, structural inequalities. It has emerged from a growing community of designers in various fields who work closely with social movements and community-based organisations around the world.

4 Evolving technologies

Since the beginning of the 21st century, driven by the fourth industrial revolution, one important mission of design has been to provide complexity-based solutions and innovative perspectives. The rapid development of intelligent information technologies such as big data, the Internet of Things, block chain, and machine learning in modern society has forced higher education to not only challenge the ongoing educational advancement but also actively face the disruptive innovation of emerging technology industries in the era of artificial intelligence and big data. Therefore, the training of future designers requires a new educational model that meets the development needs of the new era.

Considering the continuous development of design knowledge and technology, higher arts and design colleges and universities around the world are actively transforming and exploring new forms of skills training. This process is influenced by national macro-policy, a global exchange of ideas, as well as global competition between educational institutions. Furthermore, national and international scholars are attempting to cultivate the future competencies of design disciplines from different perspectives such as computer technology, management, pedagogy, sociology, economics and human resources. The continuous development of artificial intelligence and information and communication technology has promoted the reform of design education and associated teaching concepts, models, mechanisms, methods, and impact evaluation. We can see how these reforms are beginning to be manifested in the systematic transformation of the learning paradigm.

Firstly, the learning objectives have changed from focusing on the cultivation of design skills and cultural heritage, and from improving the level of professional cognition and creativity to improving

the learners' information literacy, so that learners are capable of flexibly and independently acquiring knowledge resources, sharing knowledge, and producing knowledge through multiple information channels.

Secondly, the learning content aims to better respond to the digital trend of education, so that education and teaching can not only be driven by experience but also increase the education of digital information technology content and tools, such as big data and artificial intelligence to improve students' learning ability of personalised teaching tools and their capability of quickly grasping and using new knowledge and tools. Technology itself is a key driving force to promote the continuous development of design. Therefore, actively introducing new technical forms and means to the education of design can make students more adaptable to technology-driven innovation and change.

Thirdly, in terms of learning behaviour patterns and learning organisation methods, with the diversification of education and learning forms, the learning and teaching processes are no longer pre-figurative learning in which teachers transmit stable design expertise and tools to students. Instead, project-based learning with complex attributes and agile knowledge supply to promote students' innovative learning will become the new normal. Digital and other evolving technologies have also been introduced to the education and the teaching of design simultaneously. Students need to be more adapted to the virtual learning environment and digital media, so that artificial intelligence technology can become a multiplier to further enhance the cultivation of innovative ability, rather than a shortcut to correctly answer teachers' questions. Supported by digital learning platforms, it is possible to establish a digital learning open network to better complete distributed, agile, multidisciplinary, collaborative, and project-based learning.

After entering the 21st century, the education of art and design in colleges and universities around the world has been actively exploring transformation and innovation. This process is amplified and entangled with the rapid development of new technologies, especially the fast development of artificial intelligence, which changes the cognitive learning abilities of human beings, so it accelerates the complexity and urgency of the educational transformation of design. The value of knowledge, skills and concepts in the design disciplines will be re-recognised and redefined in the teaching and learning processes. Although the progress of technology and the diversification of teaching tools make design education more dynamic and multi-dimensional, when new technologies are continuously emerging, educators still need to systematically adjust the knowledge systems, their learning resources, and organisational forms. It is crucial for them to align to their institutional strategies, and to promote the cultivation of comprehensive quality and the all-round development of human beings.

We suggest that design disciplines should pay more attention to the cultivation of students' innovative spirit and personalised education, the realisation of thinking and creation in practice, and their emotional needs and cultivation. The above-mentioned long-term characteristics of design education and teaching put forward higher expectations in the new development context. Design educators need to better understand, adapt, and manage the changes in learning objectives, learning content, learning behaviour patterns, and organisational methods to comprehensively improve the learning experience, its impact, and promote and realise the transformation of the learning paradigm. Moreover, design educators need to establish a new design learning method and learning experience based on knowledge production, knowledge innovation, knowledge dissemination and knowledge aggregation and integration.

5 Vision and societal impact

Design educators are confronted with the challenges of what to teach the next generation of designers, considering the competencies they should have, the tools they should be able to use, and – most of all - the purpose of their design actions. From this perspective, design educators define designers' roles in society and teach students how to apply it. To do so, they propose a vision of the role of design in socio-economic systems based on their understanding and principles. Such a view relates strongly to the school of thought of the education system they work within. Indeed, the context in which design educators work is critical to their doing. We are referring here to the school, the country they teach in, and the frameworks that at the moment in time are defining their culture of reference.

If we look at this relationship - educator and context - in terms of evolution in time, we can suggest some paths that help understanding today's phenomena. In his review of design history, Luis Morales (2015) points to the relevance of the history we teach students in the setting of the perception they have of their role: "If, from a historical point of view, we consider that design is an artistic activity or emphasise its relationship with technical and production developments, then the education of design students, their professional performance and its impact on society will be guided and measured by these visions." The becoming of design as a discipline started by gaining autonomy from architecture and arts and crafts and by acknowledging its specific goals and methodologies. In the early stages of its history, the role of industrial design was identified as finding an adequate aesthetic language to the changes imposed by industrial production (Morales, 2015; Read, 1967) and was very much attributed to the artistic intuition of the art historian Pevsner (2005). Later design roles evolved, broadening their scope and impact by considering the many factors (such as economy, technology, and consumption) that designers should integrate to synthesise their work. This change of perspective required design educators to enclose new subjects and methods in their teaching that would include a more scientific approach to design; based, for instance, on social studies. The attention shifted towards the final user, the consumer, and the market developing new methods and approaches, for example, "user-centred design" and participatory design. Indeed, the designers' role became an integrator of factors (technical, economic, social, etc.) that would provide innovation and value for private and public stakeholders. In this sense, the idea of the designer moved from that of an inspired, self-centred artist towards that of an innovator who would research and collaborate with others to reach the goal.

This evolution was accepted mainly in design education ecosystems, yet we can see that nowadays, two paradigms coexist. Indeed, some schools still focus on the designer's individual creativity as the driver for innovation. In contrast, many others embraced the idea of design as interconnected and interdependent to many contextual factors and developed their teaching accordingly. These differences might reside in the original culture of the school, be it more artistic, arts and crafts, or technical, but also in the period and place of their foundation and in the schools' leaders who set the strategy for its development. In some academic contexts, changes were more likely to be embraced, and that is where a new perspective started to be discussed about the role of design. That is, if design is a part of the socio-economic-environmental global system, it impacts it. This understanding means two things: firstly, designers should take responsibility for their actions (Cooper 2005) – since they affect the system; secondly, designers can promote change in the system by being an active part of it.

This perspective is rooted in the work of relevant scholars who have challenged the status quo since the seventies of the last century, proposing that designers should look for solutions for the real world,

marginalised people, environmental issues, etc. It took decades for this idea to spread and grow so that now “Design schools worldwide often state that they offer instruction on topics such as sustainability, inclusive design, and responsible design.” (Cees de Bont, 2021). Indeed today, we witness the growing presence of a broader view of the designer’s role in society. That is the role of actively promoting changes and envisioning alternative futures based on the awareness of current global challenges (Kandachar, 2010; Manzini, 2003, Papanek 1972).

With these ambitions, design educators are broadening the subjects of their teaching, aiming, for example, at designing for wider populations, promoting the idea of an inclusive approach that would not overlook any individual or group of people based on any aspect of their identities or backgrounds (Dong, H et al., 2005; Ostroff, 2011; Pullin, 2003). Some contributors to this track investigate topics related to inclusivity in teaching, learning spaces and methods, focusing specifically on typically underrepresented students in design subjects.

The awareness of global issues and the impact of design are increasingly becoming central to many education ecosystems. Design educators are constantly developing and applying new methods and tools to teaching in such contexts. Indeed, some contributors to this track describe their strategies to imagine new futures, such as design fiction, and tackle complex problems. The idea is to anticipate and speculate and make design students feel they can be agents of change.

Furthermore, design educators reach out to include other stakeholders of the system - individuals, communities, and policymakers – in their work with students. Some contributors to this track explore the role of design collaborating with local communities, national institutions, and manufacturing sectors. They discuss the relationship with stakeholders and reflect on collaboration strategies, such as apprenticeships and partnerships. The common aim of these contributors is to facilitate the development of all stakeholders involved in the collaboration.

6 Conclusions

In reading all contributions to this track, we can see that a critical debate about the role of design in society is crucial to developing new ways of thinking about and through design education. Contributors have explored practices and methodologies that bring together a range of discipline experts who aim to challenge the status quo collectively and to introduce practices that transform design education to equip students with skills and competencies that will enable them to contribute to building a fairer, more just and regenerative world.

Reshaping the design curriculum to prepare the next generation of designers to become open minded, responsible, empathetic, curious and resilient humans working across disciplines to solve the worlds most pressing challenges might become one of the core purposes of design education in the very near future. Learning the skills to facilitating the exchange of information, ideas, and research to creating impact through social and environmental innovation could become another key purpose of such education. This kind of learning environment has the potential to offer space to create connections and forms of collaborations amongst creative, human and science research areas to address the complexities of our time and generate new knowledges, new experiences of experimentation, and new forms of collaborations.

As evident in some of the contributions to this track, each participant or community will join the journey of transformation and collaboration with their own languages, cultures, and ways of learning about the world. Some individuals might already have migrated across disciplinary boundaries and intellectual paradigms, bringing multi-dimensionality of perspectives to the tasks at hand associated with navigating complexity and uncertainty. Communication is at the heart of such collaborations; equipping students with the ability to bring clarity, context, and criticality to engaging with complex design demands can promote more inclusive, accessible, and culturally resonant paths into the world's challenges.

We are confident that, as long as the reimagined and renewed design education models are based on realistic and grounded recommendations, informed by the notion of design as being interconnected and interdependent on many contextual factors, as well as being implemented through carefully considered planning and co-creation, will make design students feel they can be agents of change.

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