

Comment on: Macgilchrist, F., Allert, H., Cerratto Pargman, T., & Jarke, J. (2023). Designing Postdigital Futures: Which Designs? Whose Futures?¹

In the course of a conversation about alternative, post-digital narratives for the development of digital educational technologies, I was introduced to the paper "Designing Postdigital Futures" by a scientist friend. In my opinion, it addresses important issues and lines of thought that play a role in further discussions about the design of educational technologies. That's why I set out to write a thorough commentary on it. Now that my comments have been in my "get ready" order for a few weeks, I would like to share my thoughts on the text here. First of all: I found much of the paper inspiring and some parts irritating. Judging by the claims made, I see gaps and further questions.

Design Approaches to Avoid an Engineering Logic Dominant in Education

The topic of this paper, which is intended as a commentary, is the design of educational technologies against the background of developments in design theory. In educational science, "design" as an independent field of theory has not yet received much attention. The term is prominent in design-based research or - in its German translation - design-oriented (*gestaltungsorientierte*) didactics.

In the text, the scope is initially wide. The design of technology for education is seen as a socio-technical practice that includes political and affective dimensions, i.e. it involves micro to macro levels of education. Both everyday and global developments are addressed.

„Designing technology for education is never only a problem-solving practice. It is always already about creating spaces for inherently political and affective sociotechnical future relations (Light and Akama 2014). These can point towards ‘big futures’, i.e. radical ruptures and epochal change, or ‘little futures’, emergent processes in mundane, everyday practices“ (Macgilchrist et al., 2023, S. 1).

In what follows, however, the everyday design questions take a back seat to the epochal ones. Rather, the field is broadened to include post-digitality, socio-economic-ecological imbalances, and power relations.

„Beginning with these assumptions, this commentary identifies key issues for concern at the nexus of futures, education, and design in the postdigital condition, in which digital technologies are embedded throughout educational spaces, but no longer conceived as a panacea for socio-economic-ecological ills. Instead, power

¹ Available at <https://link.springer.com/article/10.1007/s42438-022-00389-y> (last download 08.01.2024)

relations and tensions lie at the heart of assumptions about designing futures“ (Macgilchrist et al., 2023, S. 1).

The topic we are talking about remains somewhat abstract to me. The "nexus of futures" is presented as a hub where the future, education and design come together and which, in the post-digital understanding, is per se permeated and mediatized by digital technologies. It would be exciting to describe where or how this nexus manifests itself. It sounds plausible that at such interfaces of education, technology and society, the course is set, paving the way for possible developments.

„These design decisions impact not only technicalities, but also how education — and thus the future — will be configured“ (Macgilchrist et al., 2023, S. 2).

To say that design decisions are crucial for the development of education seems to me to be too one-dimensional. Isn't there a multitude of actors, frameworks, narratives, etc. that influence education? How do these relate to design choices? I would say that there is a consensus in educational science that "education" has a necessary but not sufficient effect on shaping the future. Furthermore, it is not possible to construct a one-dimensional chain of effects between design and application, which I believe is the view of the authors themselves.

In the following text, an engineering approach in particular is criticized and marked as relativizing or avoiding.

„What possibilities emerge from decentring an engineering approach to designing postdigital futures? We explore alternative approaches to design that avoid the engineering logic predominant in education today“ (Macgilchrist et al., 2023, S. 2).

They are looking for design principles that are supposed to lie beyond this logic, that are committed to a different concept of reality, that must be thought of in a more organic, chaotic, and in a certain sense "dirty" way.

„...we flag a 'postdigital' design that assumes - as does postdigital research more broadly [...] - that realities are messy, muddy, noisy; that nothing is purely, smoothly digital;..."

This critique of the norm of the European (male) Enlightenment has been formulated many times in the wake of Kant, where the divine "watchmaker's reason" (*Uhrmachervernunft*) was central. As a possible counterweight, principles of post-digital theory building are used, which strengthen the non-deterministic, complex character of reality. This post-digital design is to be distinguished from the idea of an engineering future, as it may manifest itself in solutionist and longtermism positions - but this is not elaborated in the text. Attention will be paid to the grounding of prevailing design terms and concepts in socio-material, human and ecological conditions and development tendencies.

"... and that the very idea of 'designing futures' signals how design is entangled with epistemological and ontological groundings, with political and affective relations, with historical legacies of exclusion and oppression, and with sociomaterial and planetary impact“ (Macgilchrist et al., 2023, S. 2).

Dominant Engineering Logic in Education and Technology Design

After this argumentative constellation, the authors shed light on the relationship between design in the sense of the "engineering approach" and education.

„Engineering approaches have made inroads into educational research and practice. For instance, design-based research (a scholarly approach to designing interventions and building theory) and design thinking (a practice-based method) both generally reproduce an engineering approach. They view design as a well-structured process; the design problem is assumed to be given; the goal is to engineer a solution to the problem“ (Macgilchrist et al., 2023, S. 2).

In my opinion, these two examples are too much oriented towards the concept of design, but they are not sufficiently substantiated here. I don't think the accusation of engineering thinking does justice to either design-based research or design thinking. In my understanding, both DBR and Design Thinking emphasize the openness of the process as well as its epistemological and planning limits. Both approaches not only live well with the incompleteness and ambivalence of solutions, but explicitly embrace them.

The arguments are as follows: 1) design is understood as a structured process, 2) the problem to be solved is taken for granted, and 3) the procedures should solve the problem in the structured process. In fact, this describes the ideal approach to developing solutions. In practice, however, the problem is likely to be at the beginning, and solutions are iteratively measured by their ability to solve that problem. It is not uncommon for the problem to be reformulated. In pedagogical practice and in the practice of pedagogical research, there are hardly any definitive problems or solutions. In my opinion, the argument is completely missed the sphere of "little futures", because the formative, reflexive character plays a decisive role in everyday "design decisions".

The text goes on to unfold the ambiguous, dialectical relations between structure and action, between the man-made environment and the environmental conditionality of humans and their actions. This relationship is seen as acute in the movements of neuroscience, social engineering, and optimization ideologies that seek to make the whole human being in its humanity the (posthuman) object of planning action. The authors address the dilemma that every pedagogically motivated design, large or small, aims to "improve" and transform people. Something that is in tension with the always postulated goal of individual, self-active development.

„So our designs design us, by creating structures and materialities within which we act. In this sense, a key tenet of ontological design is that ‘we design our world, while our world acts back on us and designs us’“ [...] „A corollary of such a tenet is that design is, relationally speaking, intrinsically posthuman“ (Macgilchrist et al., 2023, S. 3).

The Shaping of Educational Practice in the Sphere of Influence of Power Structures, Knowledge Regimes and Social Inequality.

It goes on to argue that power, knowledge, and justice should be essential categories for analyzing and designing educational interventions. The text is thus in the good company of critical educational studies, which has addressed this problem extensively. The difference I can make is the strong emphasis on the independent role of design. The focus on design addresses a real void in critical approaches, whose impulses critical of power and domination usually remain normative and have rarely been reflected in a real transformation of learning/teaching environments.

Alternative approaches that the authors cite to achieve the postulated "redesign of design" include "respectful design", "participatory design", "co-creation, and co-design". Approaches that focus on empowerment, sustainability and humanity and that are ultimately expressed in the relationship between the design professional and the users, who are then no longer just users.

„‘Respectful design’ incorporates Indigenous ways of learning and being, and decentres not only engineering approaches to design, but also humans, in order to prioritise relations among humans and more-than-humans, increasing human accountability in our social and ecological relations (Tunstall 2017). ‘Transformative justice’ aims to avoid reproducing and replicating already existing structural inequalities in technology, especially in health care and education (Greene 2021). The ‘matrix for convivial technology’ emphasises the interdependence and co-evolution of individuals, social networks, technologies, and the planet“ (Macgilchrist et al., 2023, S. 3).

It seems to me that there is a great deal of agreement among the approaches presented with regard to the following characteristics: 1) the participants are understood as equal co-creators, 2) the concept of "participants" is extended beyond the people involved ("more-than-human"), 2) every measure must be evaluated in terms of its effects on other people and ecosystems, 3) every measure must be evaluated in terms of its effects on existing injustice and exploitation, and 4) every measure is provisional and must open up further design options. The figure of the "more-than-human" opens up another space of meaning for technology, especially educational technology. Here I am reminded of actor-network theory and its symmetry of human and non-human actors. Unfortunately, in the context of post-digital pedagogy, this is a confusing terrain.

„Educational technologies in education [sic!] are seen as operating in the ‘mud’ and ‘noise’ of the ‘scrappy realities’ of everyday (postdigital) educational practices [...]. Instead of following a solutions-oriented engineering logic, the approaches mentioned in this section ask: who benefits, who is harmed, and who participated in this design process or that designed product [...]?“ (Macgilchrist et al., 2023, S. 4)

IMHO, this is where known and new analyses mix. I translate the formula "in education" as an educational measure or an educational intervention, as the design of "teaching/learning relations" in the broadest sense and at all levels (teaching, lessons, projects, schools, universities, educational systems and policies, etc.). Then it seems to me already known that they meet an educational reality that has generally proved to be recalcitrant and resistant to well-intentioned planning intentions and constructed educational goals. If "solution-oriented engineering logic" refers to a technical "if-then" logic, then this has long been under attack in the pedagogical field of action. See Luhmann & Schorr's diagnosis of the "technological deficit of education" (*Technologiedefizit der Bildung*).

However, a "solution-oriented, planned approach" can also acknowledge the complex and complicated (mediatized) educational reality and be aware of its limitations and potential collateral damage. This, by the way, is the mode in which most educational practitioners I know find themselves. "Who benefits, who is harmed?" is probably a question that resonates with every pedagogical activity, though perhaps too often implicitly. The comparison made in the text, on the other hand, suggests that those who take a "solution-oriented" approach would ignore the human aspects.

A different approach to research and phenomenology in education. But: The design does not solve the design problem

The authors extend their call for a reflexive, power- and justice-sensitive mode to design-oriented research, though no explicit reference to DBR is made here.

„We need studies on the paradoxes of design and the power of design in education. We need to have conversations about studies emerging from different epistemological traditions, to capture the possibilities and impossibilities of designing postdigital futures“ (Macgilchrist et al., 2023, S. 4).

It is interesting that the field is again narrowly managed. On the one hand, I see a gap in the analysis of design principles, not only in educational technologies but also in didactic traditions. Whether it's the Berlin model of didactics (*Berliner Modell der Didaktik*), didactic triangles or pyramids or competency matrices, all abstract models have emerged from specific ways of thinking and suggest ways of thinking about how education should be designed. These codes must be cracked. But the entanglements with social structures described above must be included in the equations. Design, too, finds conditions of thought and action that are human-made, but cannot always be seen through or controlled by them. In other words, design alone does not solve the design problem. On the other hand, pedagogical practice can be improved. It is therefore logical to ask what drives innovation in design. First, it is necessary to clarify what is meant by "innovation": Who defines what is innovative design? Whose interests does it serve?

„What counts as 'innovative' design has long been associated with patriarchal capitalist modernity (Escobar 2018: 3), and an understanding of human evolution that centres around practices and tools associated with dominance, competition, and fighting“ (Macgilchrist et al., 2023, S. 4).

Narratives of heroism, efficiency, expansion, and optimization correspond to this structural feature of the concept of innovation.

„Ursula K. Le Guin argued that the focus on dominant behaviour and male power as key drivers for innovation is partly based on the ways in which these activities can be told as heroic stories. [...] Practices of caring and nurturing that value living and communal doings are backgrounded when innovation and design are obsessed with efficiency, scaling-up, and optimisation“ (Macgilchrist et al., 2023, S. 5).

What is the problem? What problems can design solve? And who?

But what problems do inventories reveal? Are they really "just" design problems? The motives and procedures of the tech industry are well known, as are their narratives. There is a tension in the text between the IMHO correct and justified criticism of the tech elites, their philosophies and actions, and the starting point that this toxic structure of economic activity can be approached from the perspective of design. What is clear, however, is that design theorists are now in the process of questioning their own ways of thinking and meaning, and reflecting on the entanglements of design with Western innovation discourses. This is good and exciting, and the transfer to educational design in the broad sense is long overdue. Alternatively, feminist, caring concepts of innovation are proposed.

„This commentary calls for transition narratives in designs for education and encourages explorations of feminist ideas of careful innovation. Stories move us to reconsider what other worlds are possible if we understand the work of innovating educational technologies around notions of care and nurturing — which is done by humans, non-humans, and more-than-humans — rather than competition, scaling up, and optimisation. This means radically transforming the ways in which we plan, design, and create our postdigital futures. Instead of framing educational problems in ways that can be addressed and solved by technologies (and in so doing, submitting to technological solutionism where for every social problem there exists at least one technical solution), scholars and designers in education need to come together and ask: In what world do we want to live? What values guide our practices and institutions? What kinds of relationships do we want to nourish? What education do we need in the midst of a climate emergency? What education do we desire for postdigital futures?“ (Macgilchrist et al., 2023, S. 6)

Here I find my addressee problem again. The criticism is apparently directed at those who frame educational problems in such a way that they can be solved by technological means. But who are these people we are talking about? The authors speak of a "we" here, so do they see themselves as actors who have adopted this way of thinking? Or are they already on the side of the solution, on the way to a better future?

The following sections of the text raise fundamental questions about the "designability" of futures. I would consider many of the questions about future and design already reflected in the course of the discussion over the last years.

„Is it the user who completes the design in use? [...] But, more fundamentally, we could ask if the future can be designed at all. [...] In this view, neither powerful actors nor participatory grassroots processes can 'design' (as in programme, configure, foresee, plan, anticipate) the future. Whatever is designed unfolds in unforeseen ways. Any solution or technology must fail in its ambition to solve a problem“ (Macgilchrist et al., 2023, S. 7).

In the application of educational technology for the design of "small futures", I see quite clearly that teachers (in universities) "bend" available digital tools until they are as suitable as possible for the respective purpose. The observation that, even in educational technology design, the resulting implementations are often far from the intentions of the developers confirms this, as does everyday experience. It would be worthwhile to analyze in more detail how technological design, framework conditions, and concrete action are related. It will probably not be possible to establish a simple chain of effects. And in many cases, we encounter the normative power of de facto use, especially in the omission of design options that the technology would offer (cf. formative assessment).

„With regard to the 'design of everything', be it (learning) experience design or cultural engineering, postdigital design approaches must go beyond doing and reflecting on design and ask what should not be left to design. What role can design have or not have, in a world of crises, in which injustice is palpable, global access to essential infrastructures is uneven, and the development and use of technologies within capitalist logics are stripping the planet of resources (Crawford 2021)?“ (Macgilchrist et al., 2023, S. 8)

The limitations made here pleasantly reject exaggerated expectations of alternative design theory and practice. I think there is also a fruitful general path outlined here, namely the not-so-new insight that actions aimed at a better future move in frameworks that exclude such a path of development.

Without "designing" the frameworks, which usually means entering into tangible conflicts, design options have only weak effects.

Education is about shaping the future

From this point of view, what is demanded here for design can be applied to all areas of planned, socially relevant action, the reflection and reconstruction of traditional knowledge and ways of acting against the background of ecological and social imperatives. The limits and conflicts of interest of such options for action are hardly concealed.

„Perhaps it is as simple as the perception that we are living in a crisis-ridden world. Or the awareness that narratives about the future are owned by actors with vested interests in retaining the status quo of profit-oriented domination and oppression“ (Macgilchrist et al., 2023, S. 8)

Finally, the main lines of argument are mentioned once again.

„Our priorities in this commentary suggest that these new stories look beyond the dominant grand techno-solutionist narratives about universal high-tech solutions, global demographic trends, or illusions of efficiency and progress. Instead, they tell powerful stories encompassing the locally situated values, worldviews, institutions, structures, and practices by which people want to live (Pink et al. 2022; see also Von Stackelberg and McDowell 2015; Machado de Oliveira 2021). These new narratives include attending to careful design, redesigning institutions to build on community solidarity, and reflecting on the undesignable. Tiny, situated narratives about emergent little, local futures support actions in ‘the pursuit of the possible rather than the probable’ and allow the democratisation of design decisions (McQuillan 2022: 136)“ (Macgilchrist et al., 2023, S. 8).

There is a bit of a small-is-beautiful approach here, which seems sympathetic and relevant to the plot. Nothing wrong with that. But I would hope that the focus would be not only on "dominant grand narratives" but also on the utopian and open parts of everyday action. Much can be learned from the pedagogical discussion about how the dialectic of "education and domination" (*Bildung und Herrschaft*) unfolds in real life in all its contradictions. Much can be designed at these interfaces between utopia and dystopia, and this is especially true for educational technologies.

„If designing sociotechnical artefacts is always already designing relations, the relations within educational practice are at stake. Design theories — often unreflected — impact design decisions. Narratives about designs impact what can be thought about design, and what is seen as desirable design. Legacy infrastructures impact design decisions about future possibilities. To rephrase key questions from this article: Which designs design which worlds? Whose designs are we talking about? And whose futures are at stake?“ (Macgilchrist et al., 2023, S. 8)

There is basically nothing to add to that last statement. If I replace "design theories" with "pedagogical theories", argumentation is probably one of the few accepted basic facts in pedagogy. The basic attitudes and internal models of human learning shape the actions of teachers and need to be raised to the level of reflection. The same applies to the socio-technical structures of the educational system. Which educational concepts shape which worlds? Whose concepts of education are we talking about? What is at stake if we let things continue as they are?