

Future orientation in design, participation and learning

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Abstract. How do we create futures in collaboration? Is future orientation in design anthropology a tool solid enough for scaffolding transformations? This paper explores the content of future orientation in design anthropology, participatory design and educational anthropology. The aim is to discuss how the three fields in different ways conceptualize processes of future making, what the central concepts are and how, in concert, they may deepen our understanding of how we work with the future.

Keywords: design anthropology, participatory design, educational anthropology, future orientation.

1 Introduction

Changes in society require that we think differently about knowing, making and learning, and new spaces emerge where design anthropology (DA) and participatory design (PD) may exchange a deep understanding of the acts of making with the educational field. The exchange between these fields is not new. In participatory design there has long been a close relation to anthropological theories of situated learning and communities of practice [1]. Also Dewey's theories of experience, inquiry and reflection have been central for understanding participatory processes in design as well as in learning [2],[3],[4]. This paper focuses on the specific topic of future orientation which is shared in current discussions within educational anthropology, participatory design and design anthropology. This future orientation is however differently conceptualized, and thus plays a different role in the three research- and practice fields. The aim of the paper is to discuss how this difference is handled, and to identify how the three fields may contribute to each other. For example, future orientation in PD is connected to utopia and imaginaries as the ethical and political dimensions of democratic participation in industrial development, while future orientation in DA is connected to a re-thinking of knowledge and human reality relevant for interventionist ethnographic methods. This is reminiscent of current attention in educational anthropology, where future orientations include the social imaginations or figures that become important knowledge resources for social agents' practices in the present.

It seems that the new visions and initiatives in design anthropology, participatory design and education share the inspiration of Dewey's pragmatic understanding of relations between experience and practice. Dewey's theories provide a grounded theoretical and methodological approach to interventionist actions to question,

investigate and collaborate in order to make meaning of existing conditions and the emergent in DA [5]. In current discussions of learning as social practice, Dewey's theories are used to argue for learning in doing and from experiences of trying and experimenting with the world to understand, thus giving a capacity to read future results in present activities [6]. Dewey's theories of experiential learning makes a distinction between learning as based on the achievement of content knowledge and learning as a social and cultural practice, and builds a grounding for movements in the field of education focusing at the role of a future perspective for agency building. In this way Dewey's thinking builds a ground for arguing that design, making and doing are cultural practices [7] relevant for both design anthropology and education.

For example, Dewey's thinking has deeply influenced ongoing discussions of education for the 21st century across colleges and universities, K-12 schools and youth-serving programs, to focus on the experience of learning, and towards the role of technology uptake for 21st-century social practices of learning. Educational anthropologists have devoted attention to how future orientation, making and agency create powerful paths to deeper learning and understanding. For example, the Connected Learning initiative calls for a re-definition of learning to include resilient, adaptive and effective learning. This involves paying attention to how socially-embedded, interest-driven, and orientation toward educational, economic, or political opportunities results in learning [8]. The expanded understanding of learning that is suggested is a matter of what knowledge and skills students need to meet the requirements of contemporary society and to face future challenges in work and life.

In sum, this short paper aims to prompt a discussion of how the future orientation in design anthropology and participatory design represents a shared interest with current educational sciences. It will point out the shared research perspective between the three fields and how they may potentially contribute to each other with a conceptual and methodological understanding of how to work with the future. The departure point, as well as the aim, is the intersection between the three fields and their approaches to future orientation. This is a transdisciplinary endeavour aimed at pointing to potential boundary crossings between the three fields as intertextual links and "through citations, translating the finding of one discipline into the terminology of another, suppressing difference in order to emphasize points of contact" [9: 22]. Thus, the paper intends to meet the call for this special issue by prompting a discussion of the role and position of ethnography and design anthropology in processes of participatory engagement and design in the various fields where future orientation becomes central.

The paper first describes these intersections between conception of future orientation in PD, DA and Educational Anthropology (ED); the empirical section will be based on a vignette illustrating the role of future orientation in a participatory design project involving students from upper secondary school. The vignette is deliberately set up to indicate the multiple levels that future orientation may produce in this intersection: as concepts for motivating participation in learning; for directing collaborative inquiries in design; and as methods for scaffolding on equal terms contributions from multiple participants. We seek to highlight how the intersection of DA/PD may be an interesting topic for further development of design anthropology and how it may inform a pedagogy that scaffolds students' future orientations, reasoning, creative problem-solving and invention.

2 Future orientation in PD

Future orientation and learning has always been implicit in the political and ethical grounding of PD. Traditionally it has taken both the form of visions and ideas relevant for future local practices and for application of collaborative methods of scenario writing, narratives, future workshops and prototyping (e.g.[10], [11], [12]). The current focus on future making includes a focus on situated practices, agonistic democracy and futures made locally in heterogeneous communities and in public contexts [13], [14]. Meanwhile, future orientation also comes in the form of utopian ideas of alternative societal models, and has worked as holistic ways of thinking, linking visions of the future with collaborative processes of transformation. In the history of PD, as well as in the history of critical design, utopian ideas have been important tools for abstractions, coming from utopias or non-places and the imaginaries.

Early PD projects brought special attention to participant empowerment through learning and development of their own voice as requisite for their participation in designing future workplaces [15]. The concept of mutual learning was used to focus on an exchange of existing practices and knowledge between designer and participant, “in order to establish a basis for communicating about the systems development area of application” [16]. Thus, mutual learning was understood as exchange of pre-defined and stable knowledge areas. This is currently under scrutiny, with the suggestion of broadening the perspective on learning in PD to include processes of imagining prospective outcomes and figuring future possibilities “still not formulated, still not materialized; but formed by and in imaginations” [17]. This illustrates the role that imaginaries and materialization have taken in current PD literature on learning, and how learning is a matter of becoming, where participants make the connections between design and the consequences it has for their practice in the future [18]. This allows for perspectives of future orientation from anthropology and DA, and addresses the emerging and formation as part of new forms of knowing in design [19].

3 Future orientations in DA

The emerging field of DA focuses on “future making,” “collaborative formations” [20], “ethnographies of the possible” [21], discusses re-thinking uncertainties and disruptions [22] and “hopeful impulse” [23]. This robust orientation of design anthropology towards the future [19] has been defined as a response to critical debates about ethnographic methods inevitably recreating the realities they set out to describe [24], [25]. But it also comes with a general attention towards ethnography of the future and the role of culture for imagining of the future [33]. DA attends this future orientation with a re-vitalized interest in participatory action research methods and performative studies in collaborative scholarships [5]. DA advocates how an ethnography of the possible may conceptually move from the actual to the potential [26], [27], and includes discussions of how human reality is based on continuous emergence that includes a trajectory between past, present and future [28], [29].

Design anthropology brings together speculative and mundane perspectives, and advocates specific future-oriented methods such as “imagining” or “speculative modes of intervention and inquiry” [30] to manifest and articulate contemporary conditions. This includes concerns about how design interventions differ in distinction between predictive and prescriptive orientations to future-making [22] and how future orientation prompts discursive reflections rather than the goal being to achieve closure in a fixed product [26]. Future orientation includes activities of making things as critical inquiries [27], [31], [32], [42]. Thus DA frames design interventions as approaches to open up and describe cultural dynamics by way of materializing the unspoken and invisible [22]. This focus tunes well with extensions of PD as acts beyond the workplace into public contexts. However, the emerging intersection between DA and PD also opens intersections with other disciplinary boundaries outside of DA. One interesting impulse goes into the field of education.

4 Future orientation in education

There are heated discussions currently in the educational field arguing for re-thinking understandings of learning to fit with the new technologies and new generations of learners that expect to have agency in educational settings [34]. Educational anthropology has long provided perspectives of how learning and cognitive development is situated and based on cultural and social activities in communities [35]. The argument goes that learning is a mutually-constituting process in interaction with the community other members of society, and in relation to cultural and intellectual practices and material tools [36]. This focus on learning builds on social practice theory in anthropology, and furthers Vygotsky theories on learning as social, historical and cultural actions (eg.[37]). Thus, the concept of “history in person” draws attention to how aspirations, positionings and figures of the future are related to the history people embody in their own life and learning [38], [39].

The requirements of 21st-century skills call for an education system that builds on a holistic understanding of learning that relates to people’s social practice and that development of agency, personalization and collective participation are part of their learning lives [40], [41]; the learning young people achieve by using digital media, for example, cannot be understood solely as acquisition of something already existing [42], [43]. The argument goes that schooling leaves out this important part of how people create knowledge in their life, and that while social transformation encompasses the learning of skills and dispositions in schools, it cannot be reduced to these [44], [45], [46], [47]. Learning is to take a position in relation to a projective element and to create agency and the ability to handle unexpected eruptions of the future. People form their identities by involving the futures they imagine for themselves in socially organized and historically embedded ‘figured worlds’. These shape people’s perceptions of future possibilities and the way they engage in learning in the present [48], [49]. This is a dynamic and creative process where people “puzzle out how to manage a new situation on the basis of their own and shared history” [36]. The central pedagogical concepts used in this learning perspective are apprenticeship, guided participation and participatory appropriation [23], which, in the current

discussion, is supplemented with actively creating, making, producing, experimenting, remixing, decoding, designing, and fostering skills and dispositions with an orientation towards the future.

For example, the visions proposed by the Connected Learning agenda for research and design [42] demonstrate an interest in how the ability to make connections starts with how learning is socially embedded, interest driven and oriented towards future opportunities in ways that position learners as active creators:

Young learners today have the world at their fingertips in ways that were unimaginable just a generation ago. World-renowned lectures, a symphony of voices and opinions, and peer-to-peer learning opportunities are all a click away. Youth can not only access a wealth of knowledge online, they can also be makers, creators, participants and doers engaged in active and self-directed inquiry. [42]

Connected learning proposes principles for educational institutions to give learners authentic tasks, experiential and meaningful activities, easy-to-use-tools, at low risk, with immediate feedback, and with structured access to resources and mastery of specialist language as main principles [42]. This re-thinking of learning draws attention to the role of imagination and future perspectives as fundamental influences on learning in the present [42], [47]. This is where current discussions in educational anthropology and design anthropology meet. The grounding of educational anthropology on a critique of traditional schooling and its consequential understanding of learning is reminiscent of critique design anthropology brings to anthropology of its consequential understanding of culture. The move towards the future and ethnographies of the possible seems to be a shared grounding for this critique.

5 Applying Future orientation in youth participatory project

The empirical example below illustrates how future orientation in design may be supported by insights from both educational and design anthropology. It is taken from a collaborative design project in Norway, from 2013–2014, organized and led by the author involving youth in developing a science center as an informal learning environment. The project involved 15 youths aged 17-18 from a high school situated close to the science center. Through a partnership between their school and the science center, they were familiar with the services and opportunities at the center. First some notes to contextualize the background of the project.

Science centers are responsible for communication of scientific matters to the public [50], and also for giving opportunities for informal learning and engagement with science. Thus their educational responsibility relates to both engagement and motivation in science in an educational setting, but which goes beyond schooling [51]. Currently, these institutions are challenged by a perception that science centers are “for kids” and are consequently under-serving teenagers and adults. Many studies point to students’ lack of motivation for science studies and science subjects and that young people perceive science education as irrelevant. [52].

For example, has the UK-based Science Aspirations and Career Choice project (ASPIREs) found that a majority of children in their last year of primary school and second year of secondary school enjoy school science, and have a positive view of scientists. But the survey shows, these positive attitudes do not continue to translate into an interest in becoming a scientist as a career [53]. Science centers' attention to young people's engagement is closely related to the educational rationale for recruitment to science directing these institutions. Meanwhile, science centers at the same time are responsible for informal engagement with scientific issues in society. Few studies explore participatory or collaborative approaches to including youth on equal terms in order to gain a better understanding of their choices, and even fewer focus on the role of young people's future orientation for their lack of interest in becoming a scientist.

This builds the background for the project that embarked on a co-design approach and involved the high school students as co-researchers and co-designers to explore young people's engagement with science. The aim of the project was to develop design ideas to develop the science center into a place to hang-out for 15–20 year olds. The goal was to use participatory design and ethnographic methods to explore and inquire into youth motivation and interest in science and, at the same time, develop proposals for possible actions for the science center to meet these in the future. The co-design process went over a year and ended with a formal meeting with the board of the science center where the youths presented their findings, their statement of principles for youth engagement from their point of view, as well as proposals for possible specific youth-engagement program at the center.

The project was based on monthly two-hour workshops, 13 in all, and the vignette below describes an episode from the fifth workshop. The vignette is specifically staged to illustrate the role of future orientation for the motivation of the youths' participation during the process, for adjusting their collaborative inquiries, and for keeping the collaboration between researcher, teacher and youth on equal terms.

The co-design process was based on workshops once a month over a school year. The 11 students, 4 female and 7 male, were involved as co-researchers in the project, and started with several qualitative and quantitative methods to gather information about local youths and their relation to the science center. During the first three months of the project, the group gathered information from, in all, 130 local youths, conducting multiple approaches: surveys; interviews and the World Café Workshop. They had a rather clear idea from the beginning about the objective of ending their work with a business plan relevant to the science center strategy for engaging youth. They knew that this business plan needed to be based on their findings from the surveys and would need to contain proposals for solutions. Meanwhile, they became increasingly aware of the need for having a future orientation in their analysis and interpretations of collected data. The data stated existing needs and satisfaction levels of youths visiting the science center, and gave some ideas for activities and themes that the center could focus on. But it gave no overall idea of how the science center could brand itself as a place to hang out in a future.

The participatory process included learning how to transform the knowledge they gained through data collection into focusing on the potential for the science center to engage with youth. First, they understood how difficult it is to define and formulate a

definition of the science center as place for hanging out based on collected data. The various data did not give a consistent picture, and they understood that they would have to argue for their imagined hang-out place with the help of incidents given by the data collected. They also had to master how to create arguments related to their design ideas based on findings in their surveys. And, last, they had to reflect upon possible benefits of the design ideas they proposed in their business plan for the science center and discuss how they should argue in support of their ideas. In short their future orientation involved an emerging awareness of the challenges of proposing a business plan for youth engagement, and involved understanding how to handle efforts to proceed collaboratively from acquiring the facts to developing imaginaries.

As part of the participatory process, the youth and the author in collaboration read policy documents on science education and discussed the relevance of the policy for their future career choices. This created a discussion of how they would understand the benefit of an engagement with science: of benefit for whom, of benefit for what, and what the difference between personal interest and professional interest would be. Martin clears his voice and says:

“I am still a bit uncertain about this... because how do we understand interest and how we design experiences for this at the science center ... it is really a matter of scaling; all from those with a deep interest in science but who would never come to this center ... and... so, I think this is more based on benefits than interests: those who would come here because they need help with their science homework and those who come here for inspiration and fun.”

The group continues to discuss the relationship between interest in science and benefits found in their collected data. Johanna talks about the need to know more about what scientists do as part of motivation, and they discuss role models as a business idea. Martin clears his voice again and says:

“If the goal is to prompt interest in science, then we have to focus on how to prompt interest in science. A lot of topics in society today ... that we take for granted are scientific—and we could take the mundane and show the science in this [...]”

Martin continues to talk about how a focus on how science as part of everyday life would potentially give a deeper understanding of how science works in a way that is more relevant to young people's orientation than the well-known science role models. In short his argument involves addressing a future perspective as an entrance into talking about how science is connected, and how it may be connected in the future. This move between the future and existing science knowledge gives an example of how a future orientation is proposed by the youth themselves to direct their collaborative inquiries.

The vignette is created to show how the future orientation from design anthropology provides another way of thinking about participation and making for the participants involved. Also, the vignette illustrates how a focus beyond a stated problem towards future potentials builds an open, explorative and collaborative approach to problem definition and formation. The tension highlighted by DA, between the actual and the potential is used to carve out new directions rather than specifying end points [54], and fits well with perspectives on futuring and imaginaries in current educational anthropology. The design anthropological encounter as a

mutual experience of becoming knowledgeable and in possession of agency creates a learning space that may serve the future-orientation that is called for in educational discussions. This creates a space for discussing how DA, PD and educational anthropology may intersect.

6 Discussion: Future orientation as a common space

The co-design process was about knowledge creation in relation to real-life problems and in a real-life context. The knowledge gained during the students' data collection phase became, first of all, important resource and design material for their reflection upon the variety of aspirations about science and science careers. The ambiguity of the collected data served as resource for collaborative reflections and as important points of coordination when going from the actual to the potential. The vignette illustrates the move from the actual to the potential and how the youth moved from interpretations of the actual in the data to carve out potential design ideas and solutions. Thus, the vignette is shaped to show how the young people worked with a future orientation, and how this process gradually transformed their understanding of central and mundane concepts of science engagement. This process of moving from the actual to the potential is here illustrated by the discussion of motivation, benefits and interest in science, and how the young people relate these to possible future services that the science center could provide. This worked as a transitional process for the youths as well for the researcher.

The future orientation prompted the young to connect the concepts of interest, benefits and motivation to their own personal experiences with science and their imaginations of its relevance in the future. In this way they began to put agency into their conceptual understanding by defining and re-defining science engagement critically in relation to the empirical evidence collected, as well as to personal interpretation and experiences. This included to read the data material "forward" in the sense of allowing their reflections to unfold rather than settle for the first translation. This is a future orientation reminiscent of the anticipatory foresighting described by Ingold as the capacity to respond to ever-changing circumstances [54], giving direction rather than specifying. The youths' reflexive re-conceptualization in the vignette includes continuously developing new meaning to the concept of science engagement as well as connecting the concept to the debates on science education recruitment steered predominantly by adults, policy and learning institutions.

The structure of the design process, aiming at clear design ideas as well as a business plan for implementation of these at the science center, introduced a tension between the actual and the potential. This is where the transformation of knowledge, learning and reflection for all participants (the students, their teacher and the researcher) happened. It resulted in re-ordering our understanding of mundane concepts such as interest, benefit and motivation in science education, and influenced the further process of the project. This was a matter of facilitating the process as a hermeneutic reflection, going back and forth between original data interpretations and the changing circumstances evolving in their discussions. This reflexivity towards their first and immediate interpretations was a messy process, and needed to be

structured as phases of feedback loops, where single arguments were held for assessment as part of the decision-making process.

The project was an authentic task, given by the research project and the overall interest in youth engagement in the science education field. The project aims were multiple: to introduce participatory design approaches to science centers; to apply participatory research methods for studying youth engagement in science education; and to demonstrate for the science center the kinds of outcomes this inclusion of youth may bring. Also, the authentic task was presented by the teacher and the educational programme of entrepreneurship that the project connected to at school. This authenticity meanwhile had to be constantly guided and coordinated by the researcher. In addition to the guided participation, managing authenticity was also included to keep the institution interested in the project and to prepare for its outcomes. This involved continuously informing the science center staff of the project's progress, and to book staff to meet with the young people to create authentic encounters valuable for their process. These meetings were important for the motivation to continue to carve out their arguments about science engagement and potential services with a realistic and authentic prospect.

From a design anthropology perspective we could say that all of these movements are about handling the emergent and involving future perspectives. The special attention to the role of future perspectives, the movement between the actual and the potential shared by the youths, the teacher and the researcher included the suspension of reality that is so central for DA. Meanwhile, we also observe how the youths created figures, where each step between the actual and the potential in the design process was involved in loops of imagining how the arguments may be relevant for their own identity-shaping and social engagement with science. This is where future orientation in DA and figured worlds in educational anthropology supplemented each other.

7 Discussion: Future orientation as a common space

Current re-thinking of education has sparked an interest in design and includes multiple interpretations of design that partly collide with what we are aiming at here; For example, current discussions of design thinking direct attention towards enhancing classroom-based teaching and the integration of technology in K-12 schools. The principles of design thinking are adapted as educational methods in constructivist learning in order to scaffold students' abilities to read critically, and think and reason logically. This includes a focus on solving complex problems by inquiry, articulation of questions, needs and desires, and represents a problem-focused approach to inquiry-based learning and problem-solving skills (e.g. [56], [57]). Another example is "design for learning" which focuses on didactic design in the form of semiotic inscriptions in learning materials and environments [55]. This is relevant to but not fully what we are talking about in the collaborative approach to future orientation proposed by Design anthropology and PD. In DA the focus is on acts of collaboratively defining the problem and addressing these with a constructive future orientation. DA carves out the tensions between the actual and the potential and

this process serves as scaffolds for new insights. This is a different approach than designing to find solutions to problems that may be pre-given or based on pre-conceptualizations, and that may miss more open-ended reflections on imaginations of the future.

So, how does future orientation create another space for re-enacting the relation between anthropology, design and education? We are familiar with how anthropological theories of situated practices [1], [58] has influenced debates of the divide between design and use in PD, re-defining design as only a temporal part of ongoing changes and design as ongoing and undertaken also after the design project is finished [59]. For education, anthropology has been valuable in understanding how teaching and learning are reciprocal and pervasive and includes collective activities that go on continually and together. Current interest in future orientation may represent another intersection between education, participatory design and design anthropology. As pointed out at the beginning of this paper, changes in society require that we think differently about knowing and learning. The multiple current and upcoming challenges call for other capabilities of knowing as part of citizenship and as part of sustainable living. The question then becomes how to depart from a perspective on social practice to understand the emergent and future-making in design and in the educational field of making, creating and producing as powerful paths to deeper learning. As described here, the future-oriented perspectives in education have a few pragmatic concepts for how to work with imagining in collaborative activities working, or how to scaffold the potential as learning material. But the exchange also goes the other way, asking how educational anthropology can contribute with unwrapping future orientation in DA with concepts such as figured worlds and with a focus on how imagined futures are socially, culturally and historically anchored.

The aim of this paper has been to point to how future orientation makes an intersecting space, where discussions of collaborative design processes, new forms of knowledge formation and the capabilities of learners may meet. Thus, the interest in the future represents an intersection between education, participatory design and design anthropology, but it would need to be further developed.

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