

## Temporal design: looking at time as social coordination

Larissa Pschetz\*, Michelle Bastian and Chris Speed

University of Edinburgh

\*L.Pschetz@ed.ac.uk

DOI: 10.21606/drs.2016.442

**Abstract:** Designers are increasingly paying attention to problematic experiences of time. From a critique of acceleration to an urge to frame present actions within more extended futures, designers have been analysing how different temporal perceptions may influence practices and how they can be influenced by design. In this paper, we argue that in order to challenge problematic relationships to time, designers should consider time in radically different terms. Instead of regarding time largely in terms of pace and direction, they should start considering the complexity of aspects that sustain the coordination of particular groups. We present this approach through the concept of Temporal Design, which endeavours to reveal actors, practices and forces that determine social coordination within specific contexts. By surfacing this complexity, temporal design would allow it to be discussed, possibly demystifying problematic experiences and enabling more inclusive ways of understanding time.

**Keywords:** temporal design; slow design; slow technology; speculative

### Introduction

Design is changing. New models of production and consumption, together with escalating social and environmental concerns, are encouraging designers to look more critically at cultural, social and economical practices, and the role of artefacts and systems within this complexity. In terms of temporality, this cultural tendency can be identified in a critique of acceleration and consequent questioning of design's traditional support to productivity, efficiency and time-saving. It can also be identified in the growing interest in speculating about future conditions that might result from present actions, especially regarding the introduction of new technologies.

In this paper, we revisit the discussion of time as a social construct and the converse tendency to describe time as objective, universalised, external to human practices, and an



This work is licensed under a [Creative Commons Attribution-Non Commercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

individual concern. We argue that a range of problematic experiences of time emerge from this tendency and that design has great potential to change them. First, however, designers would need to think about time differently. Instead of focusing on fast and slow design (time as pace) or on future speculations (time as direction), we argue for a broader temporal form of design that would consider time in its role of social coordination. Temporal Design would therefore bring the cultural, social and economic aspects of temporal experiences to the surface by looking at how they shape the social coordination of particular groups. By revealing this complexity, temporal design would open up space for discussing these relationships, possibly allowing for more inclusive temporal organisations to emerge.

## Reflective attitudes to time in design

### *2.1 Time as pace: slow design and slow technology*

The notion that Western industrialised societies have been experiencing increasingly problematic relationships to time has been a topic of interest across the arts, humanities and social sciences. Research on time has long drawn attention to a perceived temporal acceleration, often assumed as universalised and associated with the development of new technologies. This idea is equally widespread in popular discourses, and many of us feel its impact on everyday life, social interactions, and the natural world. From attempting to reconfigure our bodies through caffeine and other stimulants, to working longer hours to manage the rush, or wondering how accelerated consumption and production is damaging our environment, many of us eventually experience a sense of powerlessness regarding this supposed rule of acceleration. Manifestations of the slow movement, including slow food, *cittaslow* and even the slow university, have attempted to counteract this condition by promoting opportunities to operate at a different pace. In Design, these attempts are manifested in movements such as Slow Design (Strauss & Fuad-Luke, 2009), Slow Technology (Hallnas & Redstrom, 2001) and Design for Solitude (Fullerton, 2010).

Slow Design (Strauss & Fuad-Luke, 2009) celebrates slowness as an answer to critical issues in design, such as an often-perceived support to consumerism, a restrictive focus on functionalism, the diminishment of users' engagement with materials, a lack of attention to local idiosyncrasies, and the need to think in the long-term. In Slow Technology, Hallnas & Redstrom (2001) advance the need for a form of design that emphasises reflection, the amplification of environments, and the use of technologies that a) amplify the presence of time; b) stretch time and extend processes; and c) reveal an expression of present time as slow-paced. Important here is the concept of "time presence": "when we use a thing as an efficient tool, time disappears, i.e. we get things done. Accepting an invitation for reflection inherent in the design means on the other hand that time will appear, i.e. we open up for time presence" (Hallnas & Redstrom 2001). A slow technology would not disappear, but would make itself felt.

In both cases, slowness is celebrated as a re-appropriation of the senses and a reconnection with the surrounding community. The complexities addressed by these proposals, however,

have often been simplified into a dichotomy of fast and slow. Slow Technology and Slow Design, which are often used inter-changeably, have been appropriated in mainstream discourses as anti-technology and as a call for a return to pre-industrial practices and manually operated artefacts. This reaction reflects a narrative of industrial time (based on the clock) as replacing a more “natural” temporal organisation based on tasks (Thompson 1967), which has been strongly critiqued by a number of theorists (e.g. Birth 2012, Glennie and Thrift 2009, Ingold 1999). Narratives that describe time as uniform and evolving throughout history towards more accelerated states have also been critiqued for their potential to reinforce social inequalities (Sharma 2014) and for justifying the appropriation of natural resources in unsustainable ways (Bastian 2012).

This simplification and appropriation can be seen in a range of projects and exhibitions framed within these movements – e.g. the Slow Tech exhibition at 2011 London Design Festival, which featured anti-technology projects such as the Social Bomb that once thrown would force everyone in a space to take a break from social network services, and the Taking Time: Craft and the Slow Revolution exhibition, which praised the slowness associated with craft skills. The association of alternative approaches to time with a rejection of technology reinforces dichotomies that do not reflect the way people relate to artefacts and systems (Wajcman 2015). As a result, these proposals not only risk being interpreted as nostalgic or backward looking, but also leave little space for integrating more complex accounts of time (particularly those arising in the social sciences) or for discussing more nuanced rhythms, as well as more complex forces and consequences related to temporal decisions. As a result, instead of challenging dominant accounts of time, these proposals arguably reinforce the overarching narrative of universalised acceleration.

With a similar motivation but different attitude, Ben Fullerton (2010) proposes the concept of Design for Solitude, which questions the value of connectedness, sharing and constant availability. Fullerton advocates the encouragement of moments of isolation, as well as single modal devices. Similarly, Phoebe Sengers (2011) reflects on the way slower attitudes could be promoted by “making fewer choices, accessing less information, making productivity less central, keeping our lives less under formal control”; she further considers how this attitude could be reflected in the design of communication technologies. Instead of reinforcing dichotomies, Fullerton (2010) and Sengers (2011) draw attention to practices that emphasise alternative expressions of time.

As the original visions for Slow Design and Slow Technology suggest, the world is comprised of multiple temporal expressions, which play important roles in our lives, even if disregarded within dominant accounts of what time is. However, reducing this complexity too quickly to a simple dichotomy between fast and slow also reduces the possibilities for designers to work with time in ways that are informed by critical scholarship on the role of time in social life and thus to be better able to question norms.

## *2.2 Time as direction: future-oriented and speculative design*

Design has also taken a critical approach to time in its attempt to anticipate the impacts of present actions in the future, particularly those concerning the introduction of new technologies. This attitude may be generally identified in particular design projects but is most evident in speculative design movements such as Design Fictions, Critical Design and Design for Debate.

Since design is often focused on yet-to-exist interventions in a given context, it is often said to be invariably future-oriented (e.g. in Dunne & Raby, 2013). This orientation presupposes a temporal linearity that may lead to a cult of what is new and to a disregard of the complexity of the present. The potential reality, which exists in the designed artefact or system, is expressed sometimes as a belief in the influence of design, or as a simple repetition of the narrative of linear progress promoted by continuous technological development. Both reinforce the notion that these developments are “inevitable”. As long term effects of high technological interventions become more evident (e.g. in farming, energy production, waste management, genetics, etc.), concerns regarding the impact of actions extend ever farther in the future, and the need to find ways to engage in discussions about this impact become ever more important.

One way designers choose to engage in these discussions is through Speculative Design, which initiated as a call on designers to start speculating and disseminating ideas about how alternative ways of living may be conceived (Dunne, 1999). The call has influenced movements such as Critical Design (Dunne and Raby, 2001), Design Fictions (Bleecker, 2009) and Design for Debate (Dunne and Raby, 2007). Speculative Design artefacts would embody critical issues and allow people to project themselves into imagined scenarios, in order to generate discussion around the potential impact of new technological developments (Kerridge, 2009). Once brought into the public realm, these objects would elicit reactions and prompt dialogue. James Auger (2013) maintains that the key factors in the success of speculative design projects are the “careful management of the speculation”. If the speculation extends too far into the future, the audience may not relate to the proposal, which will result in a lack of public engagement.

An intrinsic contradiction of these approaches, however, is their focus on the “future” as the context in which critical issues arise. This focus implies that critical issues approached by speculative design projects are not expressed in the present context. Indeed, this negation has recently been criticised in specific works, such as Burton Nitta’s project “Republic of Salvation” (2012), which was exhibited as an example of speculative design at MoMA-NY. The project aims to encourage discussion of how the world would react in a future scenario of global food scarcity, but the project fails to look at the complexities of the current food economy. Indeed, the future scenario proposed by the project resembles the situation in which millions of people already live in developing countries (Prado 2013). Here again, instead of looking at the present as a heterogeneous context, the present is considered as uniform and following a linear trajectory toward the future. As with time, attempts to describe how the world is should be expanded in order to avoid these narrow framings,

expanding the considered context beyond one's own socio-economic group, culture and geographic location.

Design's orientation towards the future may therefore restrict instead of expand designers' understanding of the complexity of phenomena that come together to define temporal perceptions. This vision is shared by media theorist Douglas Rushkoff (2013), who suggests that people should stop looking into "individual futures", and should instead become more aware of what "connects them to everyone and everything else" in the present.

## **Temporal design: time as social coordination**

Despite a clear social motivation, the alternative approaches to time in design described above have been constrained by dominant narratives of time. Further they have often only considered time in terms of pace, direction and flow rather than the more complex ways that it is involved in social life (e.g. Greenhouse 1996). As mentioned, time is often presented as a single flow that has been continuously accelerating throughout history based on the development of new technologies. Instead of a social construct, it is considered to be neutral, objective and external to human practices. The dominance of this expression often leads us to consider problematic experiences of time as an individual concern, something that needs to be coped with on an individual basis.

Often, the way into thinking about time in more complex and less linear ways involves a turn to philosophy. Whether the influence comes from Heidegger, Bergson, Deleuze, Benjamin or elsewhere, much of continental thought provides important ways of challenging the dominance of linear time and tuning into the non-linearity of subjective time and historical time. However, here too we would argue that there is a problematic focus on the individual (in the overarching interest in the subjective experience of time) and a narrow cultural context (in the neglect of non-western approaches to time and history). Further, the artefacts used to tell time, such as clocks, are largely understood by these philosophers as being outside of the phenomenological remit and are uncritically understood as signalling an 'objective' or 'universal' time (see Bastian forthcoming).

Thus in developing a theoretical framework which could support an understanding of time as multiple, heterogeneous and deeply entangled within various social formations (which may be discrete or overlapping), work in the social sciences, particularly anthropology and sociology, has proven to be more useful. Such approaches enable us to ask different questions about what time is and how it works. Rather than seeing time as a flow between past, present and future (whether this be linear or nonlinear), it becomes possible to ask how time operates as a system for social collaboration (Sorokin and Merton 1937), how it legitimates some and 'manages' others (Greenhouse 1996), or how it works within systems of exclusion (Fabian 1983). We thus move from time as flow to time as social coordination.

With this in mind we propose Temporal Design as a shift within design towards a pluralist perspective on time. Temporal Design attempts to identify and challenge expressions of dominant narratives of time, as it recognises that everyday rhythms are composed of multiple temporalities, which are defined by both direct and indirect factors. It also seeks to

empower alternative notions that are neglected by these narratives. It suggests that designers should start looking at time as something that emerges in relation to a complexity of cultural, social, economic and political forces.

Temporal designers would therefore observe time in the social context, investigating beyond narratives of a universal time and linear progression, and beyond simple dichotomies of fast and slow. This is not to simply negate dominant notions but acknowledging that they co-exist with several other expressions in all aspects of life. There is a multiplicity of temporalities latent in the world. Designers can help to create tools that disclose them, also revealing the intricacies of temporal relationships and negotiations that take place across individuals, groups, and institutions. They would then consider a network of times that accommodates the multiplicity of temporalities in the everyday, the natural world, and in intersections between these realms.

Temporal Design could therefore involve:

- Identifying dominant narratives, including the forces and infrastructures that sustain them or which they help to support;
- Challenging these narratives, e.g. by revealing more nuanced expressions of time;
- Drawing attention to alternative temporalities, their dynamics and significance;
- Exposing networks of temporalities, so as to illustrate multiplicity and variety.

The approach would bring several benefits:

- Acknowledging that slow and fast rhythms co-occur and are often interdependent would challenge the assumption of universal acceleration,
- Acknowledging that the times of some are more invested in than others, would enable challenges to temporal inequalities.
- Acknowledging that the natural world has multiple rhythms would change the assumption that it therefore provides a stable background for human-made 'progress' (McKibben, 2008).

## **Temporal design: interventions**

In order to explore the Temporal Design approach we developed three design interventions, namely, the Family Clock, the Printer Clock and TimeBots.



Figure 1 Artefacts designed to explore the concept of Temporal Design: the Family Clock (left) the Printer Clock (centre) and TimeBots (right).

#### 4.1 Family Clock: exploring temporality at the interface of everyday life

The Family Clock proposes a reflection on how schedules are interwoven by families: what are the tensions, hierarchies and power relations, and how do family members learn to negotiate and agree (or not) on common rhythms? It also presents a critique of the notion of flexitime, which is often the solution offered in the context of new technological developments. The intervention was based on a physical clock designed so that the face represented the length of a day and, rather than isochronic hours, it indicated the various appointments of each member of a specific family. The clock was accompanied by a dedicated smartphone/tablet application that could be used by family members to set the clock back or forward according to individual constraints and the desired pace of life. For example, if a child was hungry they could move up dinner time. The changes each individual made were recorded in a database, transmitted to the clock, and synchronised on all devices of the family. The two clock-hands indicated, not hours and minutes, but time in intervals of 5 min (short hand) and speed (long hand). The long hand regularly moved at the speed of one tick per second, but would accelerate or decelerate according to how often family members changed time. If an appointment was set back (eg moving dinner from 6pm to 5pm), the long hand moved faster (to reach the desired appointment more quickly), and if set forward (e.g. moving the trip to school from 9am to 10am) it would move slower (to take longer to reach the appointment), eventually catching up with standard clock time. The clock was hosted by three families (the Clarkes, the Millers and the Wilsons) for a period of 1-3 weeks, where they were asked to interact with it in different situations, followed by interviews.

#### 4.2 Printer Clock: responses

Perceptions of the clock differed significantly across the families. While the Clarkes emphasised the way it seemed to connect them more closely, the Millers considered it particularly disruptive and the Wilsons were concerned about its apparent lack of function. The responses however showed a coherence of perceptions within each family, which illustrates how these perceptions are rehearsed and learned in the everyday. This echoes Sorokin and Merton's claim, that time is best understood as a system of coordination.

Issues of efficiency appeared in all interviews. Most of the participants reported to feel “stuck” when asked about when they would use the clock to influence someone to do something later. Feeling a sense of time-pressure was described as a constraint, an issue of contempt, or a reason for pride or as simple resignation, depending on how in control participants felt. Time was thus bound up with notions of control and morality. While Charlie W (13) would set the clock back to give himself more time to complete tasks and thus appear more efficient, he still felt that changing the time was somehow unethical: “because I have to be mature about school and not immature speeding up time to get through the lesson but mature to get to learn something.” Here then we see time linking up with senses of legitimacy and of what it means to be successful within a particular social group. Structured time and discipline were also often associated with success. Ethan M (35-45) considered that more flexible school structures would fail to engage students, and Paula M (35-45) thought she wouldn’t get things done if she had a more flexible work schedule. A sense of comfort provided by schedules was also pointed out by different participants, as “you sort of know you are meant to be there at that time, you don’t have to decide to be there at that time, you just are there at that time, so it is easy thinking” (Charlie W, 13).



Figure 2 Family Clock prototype and implementation

While the clock highlighted attitudes to dominant temporal narratives, it also playfully encouraged participants to subvert them. Lily M (7) proposed changing time constantly so that she didn’t have to go to school, and her and her sister Alice M (10) suggested using it to make their parents go to bed sooner, so that they could watch TV until late. Changing parental schedules was also a strategy for investing more resources in supporting the children’s time. Rob C (12) and Emily C (16) suggested putting the clock forward so that they would miss the bus, and their mum would have to give them a lift to school. When asked about when they might use the clock to create a “funny” situation, however, one child admitted, “it was quite hard to think on ones which weren’t a bit cruel” (Emily C). In each of these examples, time becomes much more than a sense of flow, and instead we see how it can be used to ‘manage’ others, in ways that can be empowering for some and detrimental to others.



The intervention encouraged participants to consider how their times relate to the times of others, but most importantly it allowed them to reflect on what it might mean to challenge the dominant account of time as external and objective and instead see it open to transformation. Sally C explained the clock as a “sort of a more imaginative thing, that helped you imagine what it would be like if you could change time” and Emily C described it as something that “made you think about time.” That is, “I liked thinking about it. Normally you wouldn’t think about when you would like to speed up time and when you would like to go back to what was good. It made me think about the day, what happened, and what you would like to change” (Emily C). Even so, others felt little agency in relation to changing the ways that time works, accepting it as “how the world is nowadays” (Tom W (45-55)).

### *4.3 Printer Clock & TimeBots: exploring temporality in schools*

The other two interventions, the Printer Clock and the TimeBots, were carried out with 4th grade pupils (9-10 years) of two schools in the UK. In comparison to family scheduling, the environment of the school offered the opportunity to engage perceptions that were less habituated and more loosely tied to each other.

#### *4.3.1 Printer Clock*

The Printer Clock aimed to expose networks of temporalities in order to show their multiplicity, but also to create what we call ‘temporal empathy’ within the context of the classroom, by presenting time through activities carried out by the students. The students initially received kits containing a small clock and a disposable camera, and were invited to use this material to document their routines over a period of 2-5 days. Importantly, the clock was featured somewhere in each photograph, which later allowed us to identify when it was taken. Approximately 400 images were collected in each school. These images were then time-stamped, and used to build up the database upon which the Printer Clock would draw.



*Figure 3 Printer Clock intervention process: building the timeline (left), trying the clock (centre) and final one-to-one interviews (right).*

The Printer Clock resembled a grandfather clock, composed of a regular clock face (initially obscured), a cord substituting for the pendulum, a printer, and a computer that stored the

children's pictures. Pulling the cord activated the computer, which lit up the clock face and printed a picture that was taken at that particular time in the past. When looking at a clock, individuals often think about their own actions and what they need to do next. With the Printer Clock, the fragmented past experiences of others present themselves as the time-readings and invite the children to establish connections between their own present and someone else's past. Moving from a quantitative time to a qualitative one, the Printer Clock tells time through the activities of others and the variety of pictures reveals the multiplicity of rhythms within that group.

#### *4.3.2 Printer Clock: responses*

The Printer Clock was placed in the main hall of each school. During the session, students ran over to the clock and kept pulling the cord to see what and who would appear in the next picture. The clock was rapidly taken over by some students, who eagerly looked inside the clock to catch the first glimpse of the print, and then shouted the name of the child in the picture. Others observed the clock from afar. The clock-face was ignored by the ones in control, with the pictures that carried the time effectively replacing it. The peak moment of excitement was when children were faced with their own pictures.

When asked to choose a time to be printed, participants mostly made this choice based on an activity that they particularly enjoyed, often referring to time indexically via the activity before then translating it into clock-time: "probably when I'm doing karate, that would be around half past twelve" (D1). The second most frequent strategy was to pick a regular appointment in their schedules; such as the time they left home to go to school. Another strategy was based on a combination of numbers, e.g. 03:09 to represent the 3<sup>rd</sup> of September, or a lucky number. These strategies show the richness of associations prompted by clock-time. Activities, tasks, schedules, quantities and numbers were all expressed in the children's choices.

Overall the children looked for identification in the printed images. There was a sense of satisfaction when the printed picture met this expectation, and a converse attitude of disdain, sometimes preceded by surprise, when this expectation was not met - e.g. expressed by not wanting to keep or talk about the image. The search for familiarity was achieved in a few cases, but in most cases participants were faced with activities of fellow students with whom they were not so familiar, or activities that they would not notice, as these activities did not directly appeal to them. They were therefore taken out of their comfort zone, and it is in this dislocation that a shift from a sense of an individual time (which was uncritically mapped onto universal time), to unexpected networks of times takes place.

The documentation of routines invited the students to reflect on the multiplicity of practices that shape temporality inside the school community, making the social layering of time more perceptible. Far from being restricted to timetables, buzzers and timed tasks, school time is a fusion of personal times, rhythms and temporal forces (Adam 1995). As clock-time gains more importance in the students' lives, this kind of activity could encourage them to

continue to consider alternative, non-quantifiable notions of time as part of their temporal contexts.

### **4.3.3 TimeBots**

While the Printer Clock focused on emphasising the embodied and situated nature of time, pointing to the mesh of activities and characters that come together to create time, the TimeBots drew attention to personal rhythms and how they played out within the context of the classroom. The aim was to challenge the idea that the world is in a state of constant acceleration by inviting children to reflect on the multiple speeds of their day. In contrast to the slow movement, which assumes acceleration as a universalised condition and attempts to counteract this condition by promoting opportunities to slow down, the intention here was to invite the students to explore the variant speeds at which they lived their lives.

The TimeBots consisted of small 3-wheeled robots that could be programmed with the help of tokens to run as slow, medium or fast in a 5-step sequence, representing feelings about speed in 5 periods of the day. The intervention started with a series of warming up questions about how the students felt about speed, describing activities, people, places and objects considered as slow, medium and fast, and marking them on a form. They were then asked to focus on a regular weekday and describe their feelings of acceleration in five periods, and mark their thoughts on another dedicated form. After this reflection, the TimeBots were distributed and decorated to create a sense of personal identification, and each child recorded their feelings of speed upon their bots. The bots were finally released altogether into a pen, running over the 5 speeds in a continuous loop, so as to enact the collective rhythm of the classroom.



*Figure 4 TimeBots: decoration and final performance.*

### **4.3.3 TimeBots: responses**

Reported experiences of the speed, even of seemingly similar situations, varied greatly among participants. Similar activities, places, people and objects were considered as fast, medium and slow, or all at once, depending on the situation and the people involved, the mood of participants, time of day, etc. Further, activities and places that might intuitively be associated with speed were sometimes considered slow (e.g. athletics, the high street, etc.).

Particular senses of speed were not intrinsically related to specific activities, people, places and objects, but were constructed by each participant based on their own personal experiences. It was however still possible to identify some bias towards interpreting experiences through dominant narratives of time, particularly in the “activities” topic, where slowness was frequently associated with displeasure and boredom, while acceleration was associated with pleasure and enjoyment. In the case of people, however, slowness was not only associated with inefficiency “[he is slow] because he kind of can’t really bother getting to work to get paid and he lives at home and doesn’t pay the bills” (R2), but also with pleasure “my grandma... I like that she is slow” (A2), and tranquillity “because C3 is really peaceful she never shouts or anything” (S2), and busyness was associated with both acceleration and slowness.

In the forms where participants marked how they felt about their days, the three speeds were relatively balanced in all stages. The speeds programmed into the TimeBots were admittedly too personal and subjective for others to connect them to their owners, and the owner of each robot was mostly recognised by its decoration. As the robots ran inside the pen, however, the children could observe the representation of their own rhythms and particularly the variety that composed the polyrhythms of the classroom. The network of rhythms created by the TimeBots in the pen enabled a unique glimpse into the combined subjective experiences of time of those students. The TimeBots interacted with each other on a different level, revealing the subjective timescape of the group.

The variety of speeds pointed to the richness of temporal experiences within the group. While the repetition of dominant narratives of speed demonstrates the difficulty of breaking with a pervasive culture of time, overall the children did not experience their 21st century lives solely as accelerated. Instead they explored the occurrence of multiple rhythms. The recognition of this multiplicity challenges the assumption that social life is monopolised by a single temporal expression, and the association of slowness with familiarity and tranquillity challenges the idealisation of always doing more. Acceleration might have become a normative model embedded in our language, but speed is experienced in multiple variations.

## **Closing reflections**

As discussed above, designers are starting to look beyond production and consumption, adopting a more critical position towards cultural, social and economic practices. In terms of time, they are increasingly interested in exploring problematic temporal experiences that are thought to increasingly compromise the quality of life in Western industrialised societies. These experiences can often be related to dominant accounts that describe time as objective, universalised, attached to technological developments and increasingly accelerated. Nevertheless, a number of design movements have attempted to look at alternative scenarios. Their developments, however, have often been appropriated and have even reinforced the same narrative that they attempted to criticise. By assuming that acceleration is a universalised condition, this notion is reinforced and the multiple temporal

expressions manifested in everyday life are disregarded. Temporal Design attempts to counteract these effects by drawing attention to social practices of time. Time is a social process, tacitly defined through everyday practices. It is rehearsed, learned, designed, created, storied, and made. This aspect however is often overlooked not only by designers, but also by society in general. Designers can have a key role in unlocking the hegemonic narratives that restrict cultural understandings of time and in opening up new ways of making, living and thinking time. Perhaps through design we will all be able to realise the multiplicity of phenomena that come together to define time, possibly feeling more empowered to change attitudes and like Sally C “imagine what it would be like if you could change time.”

## References

- Adam, B. (1995) *Timewatch: The Social Analysis of Time*. Wiley.
- Bastian, M. (2012). Fatally confused: telling time in the midst of ecological crises. *Environmental Philosophy*, 9(1), pp 23-48.
- Bastian, M. (forthcoming) “Liberating Clocks: Rethinking the transformative potential of clock time” *new formations: a journal of culture/theory/politics*.
- Birth, K. (2012) *Objects of Time: How Things Shape Temporality*. Culture, Mind and Society. Palgrave Macmillan.
- Bleecker, J. (2009) *Design fiction: A short essay on design, science, fact and fiction*. [http://drbfw5wfjlxon.cloudfront.net/writing/DesignFiction\\_WebEdition.pdf](http://drbfw5wfjlxon.cloudfront.net/writing/DesignFiction_WebEdition.pdf). On-line, Last accessed: 19.01.2014.
- Dunne, A. (1999) *Hertzian tales: electronic products, aesthetic experience and critical design*. RCA CRD research publications. RCA CRD Research Publications.
- Dunne, A. & Raby, F. (2001) *Design Noir: The Secret Life of Electronic Objects*. Birkhaeuser Basel, 1 edition.
- Dunne, A. and Raby, F. (2007) *Design for debate*. <http://www.dunneandraby.co.uk/content/bydandr/36/0>. Online, Last accessed: 09.09.2014.
- Dunne, A. & Raby, F. (2013) *Speculative Everything: Design, Fiction, and Social Dreaming*. MIT Press.
- Fabian, J. (1983) *Time and the Other: How Anthropology Makes its Object*. New York, Columbia University Press.
- Fullerton, B. (2010) Designing for solitude. *interactions*, 17(6), pp 6-9.
- Glennie, P. and N. Thrift (2009) *Shaping the Day: A History of Timekeeping in England and Wales 1300-1800*. Oxford, Oxford University Press.
- Greenhouse, C. J. (1996) *A Moment's Notice: Time Politics across Cultures*. Ithaca and London, Cornell University Press.
- Hallnas, L., & Redstrom, J. (2001) Slow technology - design for reflection. *Personal Ubiquitous Comput.*, 5(3), pp 201-212.
- Ingold, T. (1995) Work, time and industry. *Time & Society*, 4(1). pp 5–28.
- Kerridge, T. (2009) Does speculative design contribute to public engagement of science and technology? In *Proceedings of Multiple Ways to Design Research*. Online, Last accessed: 19.01.2014.

- McKibben, B. (2008) Worried? us? In *Ideas, Insights and Arguments: A Non-fiction Collection*, Cambridge Collections, pages 38 - 44. Cambridge University Press.
- Mumford, L. (1963) *Technics and Civilization*. Mariner Books.
- Prado, L. (2013) *Questioning the critical in speculative & critical design*.  
<https://medium.com/@luizaprado/questioning-the-critical-in-speculative-critical-design-5a355cac2ca4>. Online, Last accessed: 12.08.2014.
- Rushkoff, D. (2013) *Present Shock: When Everything Happens Now*. Penguin Group US.
- Sengers, P. (2011) What i learned on change islands: reflections on it and pace of life. *interactions*, 18(2), pp 40-48.
- Sharma, S. (2014) *In the Meantime: Temporality and Cultural Politics*. Duke University Press.
- Sorokin, P. A. and R. K. Merton (1937). Social Time: A Methodological and Functional Analysis. *The American Journal of Sociology* 42(5): 615-629.
- Strauss, C. F., & Fuad-Luke, A. (2009) *The slow design principles*.  
[www.slowlab.net/CtC\\_SlowDesignPrinciples.pdf](http://www.slowlab.net/CtC_SlowDesignPrinciples.pdf). (Accessed 08 November, 2015)
- Thompson, E. P. (1967) Time, Work-Discipline, and Industrial Capitalism. *Past and Present* 38, pp 56-97.
- Wajcman, J. (2015) *Pressed for Time: The Acceleration of Life in Digital Capitalism*. Chicago, University of Chicago Press.
- Weiser, M. and Brown, J. S. (1997) The coming age of calm technology. In Denning, P. J. and Metcalfe, R. M., editors, *Beyond Calculation*, pages 75–85. Copernicus, New York, NY, USA.

About the Authors:

**Larissa Pschetz** is an interaction designer and lecturer at the University of Edinburgh. She is interested in electronics, data stories, socio-technological narratives, and temporal design.

**Michelle Bastian** is a Chancellor's Fellow at the University of Edinburgh. Her research focuses on the role of time in social practices of relationality and interconnection.

**Chris Speed** is Professor of Design Informatics within Edinburgh College of Art, University of Edinburgh. Chris is Co-Director of the Design Informatics Research Centre that is home to researchers working across interaction design, temporal design, anthropology, software engineering and cryptocurrencies.