

Changing perspectives of time: Is the future of time Flexi-time?

Rowanne Fleck
UCL Interaction Centre
University College London
MPEB 8th Floor, Gower Street
London WC1E 6BT
r.fleck@ucl.ac.uk

ABSTRACT

With the increase in world population, the growth of cities and the stress this puts on infrastructure and ever depleting natural resources, this paper speculates that reconceptualising time and how we use it is now a necessity. The future is flexi-time. One way we as HCI researchers and designers can begin to re-think and question our assumptions about time is to provide people with tools to reflect on their own and other's use of time. A framework for how this might be done is presented.

Author Keywords

Time; reflection; framework; life-swap

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Reading the call for this workshop, I was reminded of a book I read recently called 'Shattered: Modern Motherhood and the Illusion of Equality' by Rebecca Asher [1]. As suggested by the title, the premise of this book is that whilst (in the UK especially) there have been huge improvements in equality between men and women in many aspects of life, all this changes for many when a woman has a baby. Suddenly it is her role to take time off work to care for the new child whilst her partner continues to work and on return to work (often part-time), she remains responsible for making the childcare arrangements and is the person who stays at home to look after the children when they are sick. The book details many reasons why this happens, from fathers being shut out from the parenting of their children from before they are even born, to both parents being unable (and sometimes unwilling) to work less or more flexibly. Asher suggests that giving the father shared responsibility for the parenting of a baby right from the start

is key: if fathers as well as mothers always each take the same amount of leave in the course of the first year of their child's life then firstly, they both assume the role of caring for their child, and secondly there cannot be a greater perceived 'risk' that hiring a woman will result in her taking time off to have children than when hiring a man. This leave should be equal and flexible to allow the parents to work out between themselves what would work best for their family. Following from this, whilst currently all employees have the right to request flexible working, many men do not feel they are able to ask for it and women often change careers to those that enable them the flexibility they require to continue to care for their children.

As a woman, who has had children, has returned to work part-time and thanks to my chosen career path of academia is able to work in a very flexible way, I am able to see a lot of sense in this suggestion. Whilst the solution often suggested of high-quality, low-cost childcare is a must, I don't want wall to wall childcare for my children. I'd rather myself and my partner were able to spend as much time with our young children as possible whilst continuing to spend time on our job work and some time on other important aspects of our lives. Therefore, what we do, and what every family has to do, is work out a way to make time work for us. But this is always difficult because like the roles of men and women, there is a need to change concepts of work and time to fit today's society.

In fact, the focus on this paper is not on feminism at all, as I see the need for flexi-time – or more precisely the need to reframe the concept of time - as extending past solving the solution of happier, more equitable family life. As the world's population grows exponentially, and cities expand putting strain on infrastructures including transport, food, energy supplies and other resources, it is time to re-think time and how it could help us manage some of this strain, especially in the short term. One of the first things it is predicted will happen, in the UK by as soon as 2015, is that we will begin to experience peak-demand energy shortages, causing blackouts across the country. Techniques such as grid energy storage and smart grid technologies are used to meet these peak demands, but another solution is to try reduce the peak demand in various ways: demand response

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

CHI'13, April 27 – May 2, 2013, Paris, France.

Copyright 2013 ACM 978-1-XXXX-XXXX-X/XX/XX...\$10.00.

[7]. Historically, pricing schemes have attempted to discourage unnecessary peak usage and there are projects looking at how to manage in-home energy demand, for example by storing energy in the home [6] or increasing appliance run-times [9]. Another approach could be to feedback energy grid information to householders to help them think about *when* they do things and possibly promote lifestyle and behavior changes [7]. This idea extends to travel - traffic is terrible at rush-hour, trains are extremely busy and much more expensive at peak-times. It extends to other resources as well, such as space: not all students can sit at a desk in the library at the same time. This need to share resources is only going to get more prevalent over the coming years.

What all this highlights is the need to re-think time and when we do things. Can we reorganize our time to fit in with everyone else's time: to share those resources we need to share, share those responsibilities we need to share and share those times we want to share? If we don't all have to get to work by 9 and finish at 5.30, we don't experience the same rush-hour problems and are better able to balance our work-life with home-life commitments. If we don't all have to physically go to work all the time, we don't have to travel at all some days. If we don't all boil the kettle in the same advert break or put the washing-machine on at energy peak-demand times we may not experience black-outs for a little bit longer. None of this is new thinking, and we all do our best to work within the time constraints we have to live with. But what it seems is clear, and what we as HCI researchers can help with, is to enable people to become more aware of their time, and much more radically and fundamentally question the nature and reality of these perceived time constraints.

TIME CONSTRAINTS

There are constraints on time: some things have to happen before other things (e.g. you are a baby before you are a grownup) and some things always take a certain amount of time (e.g. the amount of time it takes the earth to spin on its axis (a day) or travel around the sun (a year) – but as discussed in Zerubavel [10], many constraints on our time are socially constructed. For example only eating dessert after having your main course, or the unit of time deemed as an hour. Going back to the question of when we work – there are some kinds of work that require the work to be done at specific times. For example, there needs to be medical staff available in a hospital 24 hours a day, though some routine activities can be scheduled to happen at more convenient times. But for a lot of jobs, office hours are arbitrary beyond the need for people to be available to work with each other at the same time for various periods of time. And of course, our natural biological rhythms (waking with the light and sleeping in the dark hours of the day) etc. have dictated our current standard working rhythms. However, social convention is such that certain routines and patterns in one place have a knock on effect in others. So whilst I'd

prefer not to have to work 9-5 when everyone else does for some of the practical travel reasons noted above, my children's school patterns dictate that I am free to work from 9-3. How can we, as both individuals and a society become more aware of these rhythms and start to question which are necessary, which are not and how we could change them?

Another aspect of time is when is a 'good' time. Not all time is equal to all people. Everyone experiences tiredness at various points in the day, and feels more able to tackle various tasks at others. Going further there are some things that you can do 'at the same time' as other things (like sorting the washing whilst looking after a toddler) and some things you can't (like writing a CHI paper whilst looking after a toddler). Existing technologies and techniques for helping you manage your time have been criticized for increasing busyness – making me more efficient just lets me fit more (often work) stuff in [8]. However, becoming more aware of when are good times for various things that I need or want to do in my day, coupled with an insight into the perceived constraints on my time I could remove, I could 'use my time wisely' and become not simply more efficient but hopefully more able to *enjoy all my time*.

RE-CONCEPTUALIZING TIME: HOW DO WE BEGIN TO QUESTION THE ASSUMPTIONS?

It sounds like what I am suggesting requires a fundamental change in the way society is organised to allow people to use their time more flexibly and effectively for them. But even before this, we need to understand time more to realise the ways in which we can change conceptions of it. I can see a couple of ways in which this can be approached. One is for us an others like us to get together, as we are in this workshop, and begin to explore conceptions of time and question the assumptions with reference to previous research and our own understandings of the world, and begin to think of new ways of representing time in systems that enable us and others to think about it and work with it in new ways.

Another, and the approach I'm going to discuss next, is to think of ways of helping people question these assumptions by providing them tools to reflect on their own and others' use of time. To do this I draw on previous work where I outline ways technology has and could be used to support various kinds of reflection [5].

Supporting Revisiting

One of the most obvious ways in which we can support people in reflecting on their own use of time is to provide a means of recording or to support them in recording and remembering how they currently use their time in order that they can reflect on this knowledge. There are many ways in which this could be done, depending on what aspects of time are to be emphasised or highlighted: including diaries, journals, automatic logging of aspects of time use (such as life-logging technologies, sound, audio video recordings of

events, various sensor recordings or data-logs of various activity). The most basic record that many people already have is their diary. Getting people to reflect on their use of time is not a new thing, and various techniques already exist to gather relevant data, including time-sampling and experience-sampling, for example, which might make use of beepers, notebooks, cameras, mobile phones etc. to help people capture and record what they are doing (and other things like what they are feeling or thinking) at various times of the day. Therefore, as designers, one of the questions we need to ask is what to record and how. However, in order to help people move beyond current conceptions of time, our focus for design needs to be not just on what is recorded, but also what is *done* with this recording.

Prompting Explanation

Reflection is not just knowing something or remembering something, it is thinking about how something is done and why it is the way it is. Therefore, we need to think of ways of encouraging people to think not only about what they do, when and how, but also *why*. You can do this by asking people relevant questions. This could be integrated into the data collection process, for example, if we were to develop a phone app which prompts people throughout the day to note what they are doing, we could also at the same time ask them to answer other questions like – why they are doing it then, what prompted them to do it, how tired they are feeling, or how happy etc. It can also be done after the event, so when people are looking through data-logs or visualisations of their day they could be asked questions and/or to annotate their data in various ways which might get them to focus not only just on what they were doing but to justify why. The presence of another person is also very helpful to get people to explain or justify things, as it makes sense to do so in conversation with another. Therefore, finding ways to get people to talk through their time or any collected data with others could be beneficial in this way.

Seeing More

Reflection is often prompted by seeing things from a different perspective. Any recording of experience enables you to look back on that experience again and possibly see it from a different perspective given more time, especially if some guidance as to what to focus on is provided [3]. Also technologies such as sensor technologies can record, detect and represent data or aspects of experiences not otherwise available to human perception. This aspect of seeing from a different perspective can mean that more information is available to the reflector in order to make sense of events, or consider the implications of their actions. In addition, it can allow you to relate different views to each other, or to look for patterns that are only observable by stepping back to get an overview. Therefore, looking back on any visual/audio recording of events is always literally going to let you see the experience from a different view-point to

your own which can allow you to see and hear things out of your own scope of awareness at the time [4].

Life Swap?

Sharing experiences with others, as well as helping you to talk through to explain and justify your use of time as described earlier, could provide a different perspective as their interpretation of data or events may differ from yours. There is also potentially a huge amount to be gained from sharing our own experiences with others: perhaps the success of reality TV shows, including ‘wife swap’, is partially down to this. For example, we can learn how other people manage their time and their lives. It is always surprising how differently people do the most routine things that we take for granted (e.g. when do you open your presents at Christmas?) and in seeing how others do things differently and questioning why that might be, we can become more aware of our own habits and rituals which is the first step to reflecting on and questioning them. Much current behaviour change research is starting to utilise this. For example, showing people how their own energy consumption compares to their immediate neighbours and to the wider community has been shown to motivate people to change their energy usage behaviours [2]. However, there are still issues with this approach that need to be explored, including people’s tendencies to regress to the mean (i.e. actually increase their energy consumption of theirs is below the mean). Therefore, perhaps we need to find ways to help people ‘life swap’ (without appearing on national television!). What aspects of how we manage our lives and time could be easily shared with others? How to we manage privacy issues and concerns. Should this be large scale sharing of abstracted patterns of behaviour (as often used in crowdsourcing), or intimate sharing of a more personal nature between small groups of people.

Representations of time

Consideration also needs to be given to how any record or reflections of time are visualised or represented, and how such representations can be manipulated to help reflectors manipulate their experiences to see it from multiple perspectives and question their current conceptions. Simulation environments can enable people to quickly explore alternates and the consequences of possible actions. Perhaps a tool that allows people to simulate alternate ways of organising or conceptualising their time and to see different potential worlds they could be living in might be effective. Technology can also provide the means by which reflectors reorganize their knowledge to see it from multiple perspectives.

CONCLUSION

Having gone through all this theory, I find there are still no answers contained above to the question of how to change our conceptions of time. What is still needed is to know what questions to ask to get people to really question their assumptions about time, what to record about people’s lives

and how to visualise or represent it to help them share and reflect on their current conceptions. Working out answers to all these questions will take time.

REFERENCES

1. Asher, R. Shattered: Modern motherhood and the illusion of equality. Harvill Secker, London, (2011).
2. Bird, J., and Rogers, Y. The pulse of Tidy Street: Measuring and publicly displaying domestic energy consumption. In Proc. Workshop on Energy Awareness and Conservation through pervasive applications (Pervasive 2010) (2010)
3. Fleck, R. Exploring the potential of passive image capture to support reflection on experience, Unpublished DPhil thesis, University of Sussex (2008).
4. Fleck, R., and Fitzpatrick, G. Teachers' and tutors' social reflection around SenseCam images. *Int. J. Hum.-Comput. Stud.* 67, 12 (2009), 1024-1036.
5. Fleck, R., and Fitzpatrick, G. Reflecting on reflection: framing a design landscape. In Proc. OzCHI 2010, ACM (2010)
6. Mishra, A., Irwin, D., Shenoy, P., Kurose, J., and Zhu, T. SmartCharge: cutting the electricity bill in smart homes with energy storage. In Proc. Proceedings of the 3rd International Conference on Future Energy Systems: Where Energy, Computing and Communication Meet, ACM (2012) 1-10.
7. Pierce, J., and Paulos, E. Beyond energy monitors: interaction, energy, and emerging energy systems. In Proc. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, ACM (2012) 665-674.
8. Sengers, P. What I learned on change islands: Reflection on IT and pace of life, in Editor (2011), 40-48
9. Srikantha, P., Rosenberg, C., and Keshav, S. An analysis of peak demand reductions due to elasticity of domestic appliances. In Proc. Proceedings of the 3rd International Conference on Future Energy Systems: Where Energy, Computing and Communication Meet, ACM (2012) 1-10.
10. Zerubavel, E. Hidden Rhythms: Schedules and Calendars in Social Life. University of California Press, London, (1985).