# Mind the Gap: The Timeline as a Narrative Frame for Personal Content

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## Abstract

This paper presents initial findings from a deployment of Timecard, a system for the production of personal timelines. The data reveal that, far from being a neutral structure for the organisation of personal content, the timeline carries a particular set of conventions that encourage balance and that communicate precision. Yet these two values are at odds with each other. Creating a coherent timeline can mean omitting accurate content, as well as including that which is ambiguous. Resolving this mismatch is a challenge for design.

## Author Keywords

Timecard; balance; story-telling; framework; making

## ACM Classification Keywords

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

## Introduction

Time is a tricky concept to unpack. It is a fundamental part of everyday life, yet it is difficult to define [1][4], and its operationalization in systems design is often based on a number of pragmatic assumptions, with 'computer time' taking on board many of the qualities of 'spatial' or 'clock' time. Yet, we are all aware that the counting of a ticking clock has qualities that are quite different to the ways in which time can be experienced. In this position paper, I focus on one time-based metaphor that is often implicit in systems design: the timeline. Here, time is positioned as linear and progressive, a view that can both resonate and contrast with human experience. I examine this metaphor through data drawn from a deployment of *Timecard*, a service that supports users in producing personal timelines using their own content. I argue that while the timeline may seem like a neutral frame for organising such content, it carries a number of assumptions and conventions that have implications for the ways in which users design their timelines, and the meanings that others read into them. In what follows, I briefly describe Timecard, before considering how the narrative frame offered by the timeline format raises challenges as well as opportunities for systems design.

Figure 1. Timecard device.

## Timecard

Timecard enables users to create timelines of personal content, which are depicted on a dedicated device (see Figure 1). It was part of a broader exploration of technology heirlooms, led by Richard Banks and David Kirk (see also [5]), and it was intended to support the production of a timeline about a single individual, which could then be displayed in the home and potentially passed on to future generations. Timecard was deployed in four households for at least three months. In this paper, I draw on data gathered from the two deployments that I led, focusing on four interviews with Paul[1], who produced a timeline about his periodic visits to a polar region, and four with Lucy, who created a timeline in honour of her deceased mother.

## The Timeline as a Narrative Frame

Data collected from these two participants demonstrates how the ordering of content to convey a narrative is not simply a matter of placing items on the timeline to show what happened when. The timeline acts as a framework for narrative, which encourages and communicates certain values, such as balance, at the expense of others, such as ambiguity.

### Creating a Balanced Timeline

The timelines that the two participants produced contrasted sharply in terms of the ways in which content was distributed across them, reflecting in turn qualities that Zerubavel [8] has described as *staccato* and *legato*. Paul's timeline was necessarily *staccato*; his focus on a series of periodic voyages meant that the content for each visit was grouped tightly together, falling *"within a month or six weeks of each other"*.

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[1] Pseudonyms are used throughout this paper.

Lucy's timeline was much more *legato*, with content being evenly spaced over time. It was interesting to find then, that both participants sought to create a timeline that was, in some sense, balanced. For example, Paul started with his most recent trip (because of the ease of using the digital photos that were associated with it), but aimed to *"go midway back and then go right back to [..] my first trip"*. The skeleton provided by these three trips would feature two large gaps, which could then be gradually filled. Lucy had less content to manage, but her process was also one of filling in gaps, as she describes: *"That's how I evaluate how the project's going, you can see at a glance where the gaps are; you can see how it keeps growing"*. For Lucy, the gaps prompted a desire to find additional photos, for example, by approaching other family members, in order to *"make it a complete story"*.

While, practically speaking, gaps in the timeline were seen as being there to be filled (see also [7], for further accounts of this), their presence in the timeline could also give pause for reflection. Lucy indicated how gaps in the content about her mother's life had led her to consider how well she actually knew her: *"You start thinking you know your parents, and then you realise you don't actually, there's a big gap from the time you leave home and become an adult or a parent yourself, that's just a bit of a blur"*. Zerubavel [8] has also commented on how the absence of content can convey as much meaning as its presence, and sometimes these meanings are loaded. Absences can imply quiet periods, and while these are a natural part of life, they may not be the narrative that one wishes to convey (see also [7]). A timeline that is "complete" curtails these types of questions, about whether one's life was full, or how well one knew one's mother.

*Conveying an Illustrative Account*
The prior section positions the timeline as an outline in need of completion. However, the production of the timelines entailed more than simply amalgamating time-stamped data. Paul had *"thousands of images"* that could potentially be included under his more recent trips, but spoke of the need to be selective. He looked for images that were *"emotive"*, that *"epitomised"* certain events, and that conveyed the *"underlying theme [..of] this particular voyage"*. Rather than being an inclusive record of what happened when, his timeline was generated with a view to illustrating his memory of the trip. Lucy's timeline was also a *"depiction"* of *"a life story"*, which was framed by, but not wedded to, time. In creating a timeline about her mother, she needed to construct elements of the past about which she was unsure. For her it was impractical, but more interestingly, unnecessary, to uncover precisely when events had happened: *"We don't need to know exactly where and what time of day it was, that's too much information"*. Instead, she took the approach of estimating when items should appear on the timeline, in order to convey an illustration.

The production of both timelines reflects how simple configurations of items can be produced with the hope of conveying a story. This resonates with arguments put forward by Ricoeur [6] who argues that temporal experience is imbued with narrative qualities, such as means and end, and Carr [2], who suggests that narrative is inherent to the temporal order of events. Carr purports that we shape events into meaningful configurations by drawing together past and present; "human time" is "configured time" [p. 89]. Yet using a timeline to convey an illustration of, rather than an accurate record about the past, is not without complication. Whether it is intended to or not, organising content in this way communicates a certainty about what happened when. This was compounded by the design of Timecard, which portrayed each photo as being associated with a specific date, regardless of whether the date was certain (such as for a birth certificate) or mysterious (such as for a faded photograph). The problems this raised were obvious in Lucy's descriptions of how her father was *"bothered"* by the some of the dates that she had selected with regards to content that he was also familiar with. The form of the timeline did not sufficiently convey a sense of ambiguity.

## Discussion
These data suggest that the timeline metaphor encourages and communicates various qualities that are somewhat at odds with one another. Timelines are produced to be balanced and to give a sense of completeness. Yet this is dependent on the *omission* of content; far from being complete, these timelines were in fact highly selective, created to *illustrate* rather than precisely represent the selected topic. These values reflect unspoken conventions regarding how timelines should appear. For example, in *Time Maps*, Zerubavel [8] highlights the social norm for producing a continuous biography, pulling together separate parts of life in a narrative that is created post-hoc. Similarly, our participants aimed to create timelines that were coherent, and this has been replicated in a more recent study of a related timeline tool [7]. A second convention is highlighted in philosophical investigations into narrative and temporal experience. Ricoeur [6] and Carr [2] highlight the role of narrative forms such as beginning and end when bringing order to time. Similarly, our participants used anchor points such as

birth certificates and photos of gravestones, or first and last voyages, as bookends. Thus, while the timeline appears to offer a neutral framework for content, its production reflects a set of norms that necessitate omission as well as inclusion in order to produce a single, coherent, and illustrative account.

Interestingly, our data also reveal that while missing out content is important in constructing a meaningful timeline, the need for balance means that omissions are problematic if they leave a visible gap. Yet, the inclusion of gaps in a timeline is also communicative, and can support other experiences, such as reflection. It is worth considering how these experiences might be underpinned without compromising the narrative that one wishes to convey. This relates to a second difficulty with the timeline metaphor, namely that its format can communicate qualities that were not intended during its production. Most evidently, the desire to provide an illustration can be at odds with the timeline form factor, which seems to communicate precision rather than ambiguity (see also [7]). There seems considerable scope for design here. While timelines typically represent time as consistently and evenly unfolding, this is likely to be at odds with both human memory (people are more likely to remember events from adolescence and early adulthood, see [3]), and stores of personal memorabilia (which are influenced by technological advances, such as digital photography). Representing various time periods differently, in order to convey the different levels of ambiguity associated with them, is an interesting design challenge.

## Conclusion
In this short paper, I have begun to unpack some of the findings from a deployment of Timecard, a system for the production of personal timelines. The data reveal how, far from being a neutral structure for organising personal content, the timeline carries a set of conventions that encourage balance and communicate precision. Yet our data also reveal how these two values are at odds with one another. A coherent timeline may depend on the omission of content about which the facts are known, as well as the inclusion of that which is ambiguous. Resolving this mismatch in systems design may mean drawing on the ways in which humans "configure" time (e.g. [2]), rather than metaphors that position it as linear and progressive. This is a rich area for future research.

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