

Coordinate Displays in the Home

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ABSTRACT

This position paper reports existing non-electronic ‘displays’ implicated in mail use in the home environment and the role such displays play in social coordination and collaboration. We place the word display in scare quotes to draw attention to the act of displaying, which our ethnographic studies of mail use show to be distributed across a variety of locations and mundane technologies situated around the home. The act of displaying highlights the need for design to consider the development of networks of ecologically distributed displays in the home environment and elsewhere.

Keywords

Ethnography, domestic environment, mail use, coordination, situated displays.

INTRODUCTION

Addressing the topic of technological displays, computer based or not, brings to mind the perennial topic in systems design of the interface. Accordingly, displays might be thought of as sites where communication is effected [4]. Grudin’s classic article *interface* highlighted the paucity of prevalent cognitive conceptualisations of the interface and offered a more comprehensive model that instructed design to attend to the wider social environment in which the interface is situated and where communication is therefore effected.

Bowers and Rodden [1] went even further, ‘exploding’ the myth of a unitary conceptual entity into many fragmentary sites where users construct interfaces in the course of their cooperative work. Bowers and Rodden radically reconceptualised the interface as a heterogeneous body of situationally constructed cooperative work sites where the trajectories of users collide and *interfacing* goes on to provide for communication and the coordination of independent courses of practical action.

When addressing the topic of displays we adopt a similar position. That is, we consider displays as a heterogeneous

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collection of fragmentary sites constructed where trajectories collide and *displaying* goes on to provide for communication and the coordination of independent courses of practical action. This contrasts with current approaches that consider the placement of technical interfaces, screens, or displays in the home [6].

Instead, and through ethnographic inquiry [2, 3], we to wish consider a number of alternate issues that we believe radically effect technical considerations. These issues include:

- What displays already exist in a setting?
- Where are displays currently located?
- How are displays situated in a setting?
- Why or for what purposes are displays constructed?

In addressing these issues we caution against employing restrictive technical concepts that reify the notion of a display. We are not interested in technical definitions of a display, but in the craftful ways in which the inhabitants of a setting address the above issues. It might be said that instead of employing some conceptual formulation to address these issues we are concerned to establish where *participants* in a setting’s work see displays as residing? What *they* treat them as being? Between what separated entities? With what properties? And to what ends they employ them?

We consider the use of mail in the home environment in order to explicate our orientation to the study of displays. The reader should not expect the study to say anything about displays *per se* – i.e. the study will not furnish some generic definition of a unitary conceptual entity (like the interface before us, that is a myth we would explode). On the contrary, the word ‘display’ is a **verb** rather than a noun and so refers to a diverse array of practical accomplishments, to a multiplicity of things *done*. Accordingly, our study reveals that multiple technological displayers (screens, interfaces, etc.) will be required to support the ecologically distributed displays constructed by participants to communicate with one another and coordinate their actions.

MAIL USE IN THE HOME

Handling mail is a routine activity central to the coordination of domestic affairs. Mail occasions such mundane yet crucial actions as the paying of household

bills, attending routine health checks or school meetings, taking the children to parties, etc. The following ethnographic instance explicates the cooperative work involved in mail use that provides for the paying of bills, attending health checks, taking the kids to a party, etc. The instance makes it visible that the coordinate accomplishment of a host of contingent and divergent activities occasioned by the arrival of mail relies upon taken for granted organizations of action and technology use in which displaying is essential and which transcend individual and idiosyncratic properties that are often said to mark out the home as a unique or distinctive environment.

Mail is typically collected from some central point, whether that point is located at the front door, in the grounds outside a house, or from a post box located elsewhere in an apartment block. Depending on the contingencies of location, the collection point for mail is one at which displaying may go on. The displaying simply consists of this: seeing that mail has arrived. Mail may be collected by any household member - in some homes the same person might do the job all the time, whereas in others it simply depends on who gets up first or who is home first. The point to note here is that the collection of mail by household members is not coordinated through the nomination of a 'collector' but through the public availability of a shared and known in common collection point and, contingently, on the visibility of mail. Any household or group member can collect the mail (not anyone can open it, however).



Display 1. The porch: a shared and known in common collection point.

Having collected the mail, it must be sorted (even one single piece of mail requires sorting). The person acting as collector has certain taken for granted rights and expectations attached to their position. It is assumed by members that persons acting as collectors who are also 'householders' (i.e. persons who are responsible for the running of the household) have the right to open mail concerning the maintenance of the home (e.g. bills) and formal matters concerning junior household members (e.g.

letters from school concerning children). The opening of mail is not necessarily ordered by recipient name on an envelope, then, but by entitlement to open such mail. The point here is that there is often a visibility to mail that displays and so announces its practical character: what it is about, who it is from, and who may thus be an appropriate recipient and so be entitled to open it. This is often conveyed by a logo, organizational stamp, postmark, or the printing of the sender's name on the outside of the envelope.



Display 2. Displaying and announcing the practical character of mail (phone bill arrives).

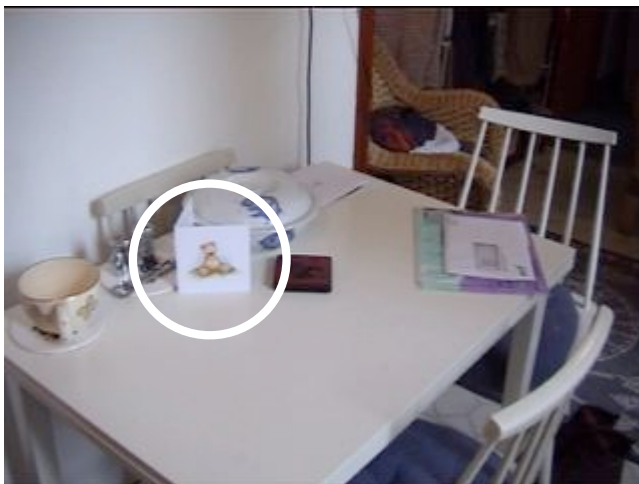
The visibility of the practical character of mail allows the collector to make judgements as to the relevance of mail to the home and to household members. It is in this respect that members come to categorise certain mail as 'junk', to do so at-a-glance, and to respond to the categorisation by throwing the designated mail away. Junk mail is not always so easily spotted however, as categorisation is a matter of judgement rather than being given in advance. Consequently, the collector may open mail and browse through it to establish its relevancy status.



Display 3. Placing mail of relevance to others in general (corner of kitchen table).

Mail that is deemed relevant to other household members is organized in a variety of unique ways. The recipient may decide that the mail received might be of interest to other household members. The relevance of mail to other household members is organized through particular assemblages of display, with each assemblage articulating particular relevancy statuses. Mail which a recipient deems to be of relevance to others in general is displayed in a public location, again shared and known in common, where it is plainly visible (see Display 3). The precise location for such displays varies from household to household as display is contingent upon the particular material arrangements of domestic space. Common places include mantelpieces, bureaux, or tables, but other places may be used as the contingent arrangements of domestic space allow.

Mail that is deemed to be of relevance to a particular household member is often displayed in a different location that is relevant to the member in question: e.g. at the place he or she usually sits when relaxing, at his or her place at the kitchen table, or even outside a bedroom door. The recipient designed and accountable character of mail displays enable members to see at-a-glance that mail has arrived that requires their attention and action.



Display 4. Displaying mail of relevance to a particular household member (recipient's seat at kitchen table).

Opened mail that has been viewed is also displayed according to its relevance to practical action. The display of opened and viewed mail is ordered by the temporal flow of sorting work and the organization of mail into discrete groupings that reflect the actions required at-a-glance. Again, these displays are contingent on the material arrangements of domestic space. Mail for external use, such as they payment of bills, is placed in a location that reflects the need for external action: e.g. on a desk in the hallway, at the front of the kitchen table, or next to a bag that is routinely taken along when a person leaves the house.



Display 5. Displaying mail for external use (electric bill)

Mail for internal use is displayed in an alternate location: e.g. on top of the stereo, on top of the bureau, or at the back of the kitchen table. While particular locations vary from home to home, this latter arrangement is effectively a 'pending pile'. It may contain mail for external use if it is not of immediate relevance. When sorting through the pending pile it may also transpire that particular items are no longer relevant and so they may be trashed



Display 6. Placing mail pending further action.

Opened mail may accrue in the pending pile until it is felt that some further action should be taken. Further action may lead to the display or movement of mail to other discrete locations that are tied to the projected relevance of mail. Accordingly, mail may be displayed on a noticeboard (which may be nothing more than a designated space on a wall). Noticeboards are used as a place to display mail of short-term relevance: things like invoices, concert tickets, appointment cards and invitations, and longer-term information that is frequently consulted, such as school term dates, restaurant menus, etc. Mail of longer-term relevance, such as mortgage statements, legal paperwork, financial affairs, etc., is filed away in dedicated location

organized for storage and retrieval: e.g. in a bureau, drawer, or filing cabinet.



Display 7. Placing mail of short-term relevance.

BEYOND THE CONTINGENT

This short ethnographic study demonstrates that members construct displays to coordinate activities, which are implicated in mail use in the home in this case. In handling mail, members construct a series of interconnected, ecologically distributed displays that are recipient designed and accountable, thereby providing for awareness, inference, and action. In the context of home-oriented design the construction of displays articulates potential application areas for design that transcend the individual and idiosyncratic.

While sites for the construction and distribution of specific displays may change from home to home as a result of architectural and aesthetic differences, the construction of displays is not so plastic. Regardless of architectural and aesthetic contingencies members routinely construct displays to coordinate their actions (e.g. the paying of bills, attending school meetings or a party, etc.). It might be said that the coordination of action is conducted through the ‘methodic’ construction of displays, where the method of the matter is understood to refer to the construction of displays in such ways that regardless of architectural and aesthetic contingencies *members* can see, and see at-a-glance, that items so displayed (e.g. on the mantelpiece, stereo, or that part of table) are items for others in general, particular others, for internal use, and external use, etc. The methodic construction of displays transcends the idiosyncratic and individual, then, illuminating the different and often subtle kinds of coordinate display that are constructed in a setting and serve to articulate potential application areas for design.

If we consider the development of electronic mail for domestic settings, for example, existing displays are largely confined to a single screen situated in a fixed location in a corner or some other outpost of a room where the computer often lives. Clearly, this display ignores the spatial and temporal construction of mail displays across various

locations in the domestic space. Projected arrangements of email utilising 3rd Generation mobile technologies promise to support recipient designed displays but, in being personal rather than geographically or ecologically situated, such displays inhibit accountability and the social monitoring of action statuses afforded by the construction of public displays. In short, existing and projected displays of electronic mail are inadequate when faced with deployment in the home and they are inadequate as they fail to appreciate and respond to what the display of mail is ‘all about’:

a letter in the geography of the home is a marker of what point a job-to-do has reached. Email might support this if the screens [or displays] are located in places that equate to locations within the domestic workflow. [5]

Members construct mail displays so that they can see at-a-glance where-they-are-now and what-needs-to-be-done-next in the overall flow of some job of work (e.g. receiving and paying bills, receiving and replying to a letter from a family friend, receiving tickets to and attending a concert, receiving legal letters and storing them for later use, etc.). The use of mail in the home instructs us that workflow is ecologically distributed across the domestic space through the construction of displays that reflect the current coordinates of a range of ongoing jobs of cooperative work to hand. This raises the issue of developing a range of networked, ecologically distributed displays that may be placed in various contingent locations to support the spatial and temporal ordering of the flow of work in the home.

In the wider context of CSCW and interactive systems design more generally, the demonstrable construction and ecological distribution of displays opens up a fruitful avenue of research to explore the methodic ways in which displays are constructed by members to coordinate their activities and manage the flow of work in a wide variety of practical settings beyond the workplace.

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