

Segmented Institutionalism as a Perspective for Understanding Family Technologies

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ABSTRACT

Designing family technologies is a dynamic challenge that may benefit from an equally dynamic theoretical perspective. We propose adapting the paradigm of segmented institutionalism, previously applied to the analysis of organizational work, to investigations of family technologies. We provide an example of our own work designing technology with divorced families to highlight this perspective's focus on multiple stakeholder perspectives and design trade-offs.

Author Keywords

Family, divorce, parents & children

ACM Classification Keywords

H.5.2. Information interfaces and presentation (e.g., HCI):
User Interfaces: *User-Centered Design*.

INTRODUCTION & MOTIVATION

Families have demonstrated remarkable propensity for adopting CSCW technologies. Computing in the home has become as common as basic appliances. Availability of mobile devices has released family technologies from the architectural constraints of the house. These technologies span multiple fields of study, looking to support the family in everything from staying connected, healthy, and entertained, to staying on time. The definition of “family” itself seems to be shifting. The nuclear conception of the mother, father, and children living in the same household has given way to an infinite variety of extended, distributed, blended, and unconventional families. It is a challenge to reflect upon this moving target, but not one without precedent.

At an analogous stage in the development of organizational computation for the workplace, social scientists reflected on the development of two complementary views of compu-

ting: system rationalism and segmented institutionalism [12]. System rationalists extolled efficiency and excelled in stable settings, while segmented institutionalists assumed conflict and radical change to be inherent and succeeded in more dynamic circumstances. We draw on this historical parallel to extend the segmented institutionalist perspective, proposing it as a tool for understanding and responding to the rapid evolution of family technologies and the social structures they aim to support.

We begin by describing the theoretical background of the segmented institutionalist paradigm and point out past investigations in family technology that have highlighted issues relevant to this perspective. We provide a synopsis of our own work with divorced families as an example of an area where this perspective can be particularly powerful. Finally, we discuss the opportunities and challenges presented by investigating family technology through the paradigm of segmented institutionalism.

THEORETICAL BACKGROUND

Hirschheim & Klein posit that the information system developer's basic epistemological assumptions become manifest in the practice of system design and evaluation [10]. Burrell & Morgan delineated the two dimensions that define these epistemological paradigms: objective–subjective and order–conflict [2]. The objective paradigm posits a quantifiable, classifiable external reality. On the other hand, the subjective paradigm rejects “hard” classification of facts and universal laws of the social world, often allying with qualitative methods that emphasize the interpreted nature of reality. Both views are represented in designing for families, though the popularity of tools like ethnography, participatory design, and probes point to a stronger endorsement of the subjective spectrum. The order–conflict dimension presents two models for interpreting society: “sociology of regulation” and “sociology of radical change.” The first is concerned with stability, integration, functional coordination, and consensus. The latter is interested in change, conflict, disintegration, and coercion. We posit that diverging motivations and tensions that characterize family relationships have been largely overlooked in previous designs for families. We propose a more inclusive alternative perspective by connecting with another epistemological framework.

Kling compared social analyses of computing in work organizations between 1950 and 1979 and found two distinct camps of study [12]. The system rationalists emphasized the positive role of computing in improving the efficiency of organizations. On the other hand, the emerging camp of segmented institutionalists examined both the “legitimate” and the “illegitimate” consequences of computing by studying all stakeholders, including non-users. While the rationalists emphasize agreement on goals, the institutionalists assume stakeholders have overlapping and conflicting objectives and motivations. Many current designs for the family echo the system rationalist approach: 1) focusing on improving family efficiency; 2) assuming consensus on family objectives; 3) including only users in the evaluation; and, 4) having an optimistic view of the impact of computing technology. While this is a reasonable lens for many family designs, a different perspective—segmented institutionalism—is offered at the intersection of the conflict and the subjective paradigms. We adapt the segmented institutionalism perspective to analyze computing in the family, by focusing on:

1. Achieving shared meaning, rather than efficient function
2. Conflicting and overlapping goals, rather than consensus
3. Including all stakeholders, rather than only direct users
4. Highlighting trade-offs, rather than evidence of success

We propose that leveraging this perspective for designing family technologies will offer new areas of investigation, identify open problems in existing work, and provide a powerful guide for system analysis.

DEPLOYMENTS HIGHLIGHTING CONFLICT

While the dominant paradigm in family design has been consistent with system rationalism, several investigations have pointed to other potential approaches. While far from an exhaustive account, the following deployments suggest that conflicting goals play an important, but seldom investigated, role in the adoption of family technologies.

Privacy and Monitoring

Several studies suggest that elderly family members may be willing to give up some privacy (*e.g.*, for medical monitoring) if they view it as necessary for their safety [3,4]. However, the role of monitoring is unclear when a family member’s appraisal of safety in a situation conflicts with the elder’s. Young children and parents struggle with privacy, as well. Fraser *et al.* investigated technologies for managing homework to highlight the tensions that characterized this family activity [8]. Parents must negotiate the trade-off between the security that comes with greater monitoring and the trust/responsibility associated with greater independence. Palen & Dourish [14] emphasized the importance of investigating privacy in families; yet, there have been few designs focusing on privacy negotiation in the family.

Negotiating Artifact Access

Several studies have identified family calendars and shared lists as artifacts for *negotiation* among family members [5,18]. However, the investigation of the LINC system [13] through participatory design with ten mothers showed that they sought to maintain exclusive edit control of the family calendar. Parents also look to establish control over communication media accessible to children or teenagers of the household as a way of enforcing rules [9]. Other times, children’s digital calls for attention were sometimes viewed as annoying or out-of-place, which led Sellen *et al.* to emphasize that “households are not domains populated by people with equal rights” [17]. Unfortunately, the role of conflict and negotiation in the use of new family technologies has been largely unexplored.

Costs of Communication

Romero *et al.* provided a strong example of evaluating for trade-offs as they explored both benefits and costs of staying connected with awareness systems [16]. While there are a number of affective benefits, the costs could include unfulfilled expectations, the creation of new obligations, and time. Young children may find the costs of sharing incommensurate with the benefits—they are less motivated to self-disclose than the adults in their lives desire [6,11]. While some work has explored using games to create additional benefits for children to share (*e.g.*, [7]), we know little about the costs that children face. Working with adults and elderly parents, Plaisant *et al.* found that adding symmetric benefits and lowering interaction costs was successful in creating family awareness through a shared digital calendar [15]. However, while the elderly parents continued to use the calendar, the adult children accessed it less as time went on. This highlights that family members face different costs and benefits of communication, but few designs explicitly seek to address gaps in motivation.

Control over an artifact and benefits/costs from using it are not spread equally across family members. The segmented institutionalism approach calls attention to the issues of these multiple stakeholders. In the next section, we present our work in a context for which the segmented institutionalism perspective provides a particularly appropriate lens.

SEGMENTED INSTITUTIONALISM WITH DIVORCED FAMILIES

Divorce is common and widespread. It causes considerable hardship for the child and non-residential parent as they struggle to adjust to the separation [1]. Despite its potential impact, this issue has been largely overlooked by technology designers whose paradigms fit on the order spectrum. Segmented institutionalism offers a counterpoint that focuses on understanding the conflicting goals of each stakeholder in these social arrangements.

We conducted 30-minute semi-structured interviews with 5 residential parents, 5 non-residential parents, and 5 children (ages 7–14) representing 10 divorced families. Consistent with the segmented institutionalism perspective, we focused on identifying the tensions between these three stakehold-

ers, the challenges they experienced to communication, and the negotiation of contact over time. We found that interviewing one parent from each family allowed each adult to give their account without the need to reconcile it with the other parent's. We interviewed the children separately and used a drawing exercise to seed conversation—asking them about their drawings allowed us to talk about the challenges they currently faced (see Figure 1). These two strategies helped us get rich accounts of each participant's experience.

Members of divorced families balanced two conflicting goals: reducing tensions between households and maintaining closeness. While both parents wanted positive outcomes for the child, they often disagreed about how to achieve this. In the interest of minimizing tension, the “my house, my rules” policy was the most common solution. Children mentioned trying to reduce tensions between households by keeping the details of their involvement with one parent as private from the other as possible. Parents sought to reduce conflict by respecting each other's autonomy and minimizing unscheduled interruptions of the other household. However, this dynamic meant that residential parents often had little support as they struggled to provide the bulk of caregiving for the child, while non-residential parents lacked opportunities to provide instrumental care. Time with the residential parent often fell on school days, leaving them few “fun days” with the child, and leading to some resentment over the perception of the non-residential parent as “the fun one.” The parents' need to minimize interruption

also clashed with the child's goal of achieving spontaneous contact. Instead of the spur-of-the-moment interaction desired, the non-residential parent and child usually settled on a single brief phone call at bedtime. Non-residential parents and children expressed that they would prefer to stay in touch through shared activities rather than phone conversations, but found that asymmetric access to infrastructure between households often led to the lowest common technological denominator. While the non-residential parent may have been driven to upgrade home infrastructure to include new technologies such as videoconferencing, there is often little motivation for the residential parent to do so. In fact, the residential parent may see the introduction of a new communication technology as a violation of his or her autonomy in raising the child. Even when a technology was available in both homes, the child often required the residential parent's help to schedule and set up the connection. The child was unlikely to request this assistance in the interest of minimizing tension between the two parents. Thus, technologies such as videoconferencing were used only on special occasions, if at all. For a more detailed discussion of this investigation, refer to our journal paper [19].

Segmented institutionalism points to the next directions in this work: investigating other non-users (*e.g.*, step-parents, half-siblings) and designing interventions to help build shared meaning between all the stakeholders. In the next section, we point out the advantages and difficulties of designing for families under the segmented institutionalism perspective.

DISCUSSION: OPPORTUNITIES & CHALLENGES

Segmented institutionalism emphasizes the importance of understanding the experience of the stakeholders involved with a technological intervention. One challenge is that participants may be hesitant to reveal conflicting motivations and disagreements when interviewed as a family unit. Hirschheim & Klein pointed out that loyalty to the group, the need to maintain authority, and the need to protect oneself pose serious challenges to the investigator in attempting to understand conflicting viewpoints [10]. Some strategies may help assuage these issues, such as interviewing each member in private and dividing families across workshops and focus groups (*e.g.*, all children in one group, all grandparents in another) during investigations.

The design of a technological artifact in this perspective focuses not on providing evidence of its success, but rather on highlighting tensions in how each stakeholder experiences the intervention. This provides opportunities to observe unintended consequences for users and non-users. In embodying uncovered tensions in technologies, satisfying all parties or achieving consensus is not necessarily possible or desired. Once trade-offs are identified, the designer may choose to align with a particular stakeholder or work towards building a shared understanding between stakeholders (without necessarily seeking a functional resolution). However, it is important that the designer explicitly dis-

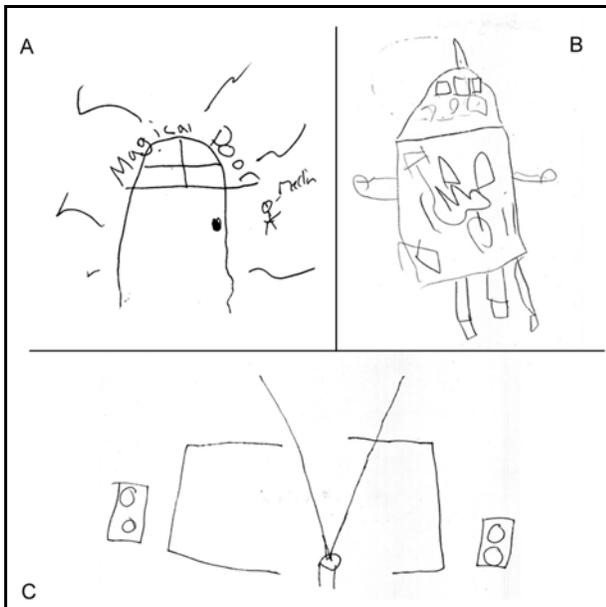


Figure 1. Children's drawings of magical objects to help them stay in touch with their non-residential parents, highlighting challenges: **A**) a magical door that lets the dad enter the child's room to say good night, highlighting daily routines; **B**) a robot for carrying secret messages between a boy and his father, highlighting privacy; **C**) a system with speakers and a holographic projector that lets the parents and child speak whenever they want, highlighting spontaneous contact.

cusses this decision and considers its political implications. The paradigm's focus on *change* presents a challenge for evaluation, suggesting the need for an extended deployment to provide ample opportunity for family members to adapt and negotiate the artifact. Such deployments have previously proven quite challenging to the community, as most prototypes may not be robust enough for the demanding environment of the home.

Identifying with the segmented institutionalism perspective moves some questions to the forefront, while others diminish in importance. We have pointed to the issue of divorced families as one overlooked matter. Blended families (remarried families with children from previous divorces) are a related issue for future exploration. Designs for inter-generational interaction also benefit from the segmented institutionalist lens, as achieving shared meaning is an important goal of this context and the researcher must consider the divergent views of all stakeholders. Similarly, relationships that are often characterized by conflict or a lack of shared meaning, such as young siblings or relatives by marriage, may benefit from a segmented institutionalist approach. Another largely overlooked topic is addressing the needs of teenagers, whose role in the family is often defined by radical change and conflict. Previous work has shown that considering artifacts from a teenager's point of view can lead to a rich understanding of family technologies [9], but few designs have explicitly considered supporting shared meaning and addressing conflicting goals between teenagers and families. Kling [12] concluded that the segmented institutionalism perspective gains value as computing expands to more diverse groups; it is our hope that this will also be true in applying this view to design for families.

ACKNOWLEDGMENTS

We would like to acknowledge Yee Chieh "Denise" Chew and Kurt Luther, who contributed to the qualitative analysis of the interviews. Most importantly, we deeply thank our participants for their time and honesty.

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