

# Time and Aging: Designing for Time in Retirement

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## ABSTRACT

Aging and time are mostly being focused separately in HCI. In this paper, we examine retired people's experiences around time through their daily routines with the lens of emerging time and design concepts from Human-Computer Interaction. In this Late-Breaking Work, we introduce a design concept based on the interviews with retired people about their time routines. Inspired by previous work in HCI on emerging non-clock time concepts such as plastic time and collective time, we detected several exciting spots for design explorations around organizing time in later life. Based on insights from the initial findings around collective rhythms and quality of time, we propose an artefact (with two versions) designed with the guidance of positive design theory to discuss creating meaningful experiences. Also, we pose questions on how to form positive time interactions for later life.

## CCS CONCEPTS

• **B7; Human-centered computing** → Interaction design; Interaction design theory, concepts, and paradigms.

## KEYWORDS

'Aging', 'Retirement', 'Time Perception', 'Temporal Experience', 'Positive Design', 'Design Probes', 'Design Artefacts'

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## 1 INTRODUCTION

Human-Computer Interaction has long been interested in how people interact with technologies to organize their later life, creating a set of examples in line with individuals' and communities' positive experiences through their lifespan [1, 4, 7, 9, 18, 20]. Previous studies illustrated how older people could actively contribute to new designs [11, 15, 16]. Inspired by these studies, our research aims to look at how retired people experience time. Understanding their daily routines in the light of emerging time concepts can guide us

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in designing new interactions for time-related technologies in later life. For this study, we adopt a positive design approach. We search for new interactions in which retired people experience pleasure, reach their goals, and feel morally good [3].

We take the emerging concepts of time in HCI to expand our horizon about designing for time with retired people. Recent HCI studies showed alternative understandings of time beyond the existed conventional fast pace efficiency-focused clock time. Slow design [5] challenges the acceleration by stretching time or slowing things down from the pace perspective. The temporal design [13] suggests a more pluralist perspective, which examines time considering social, cultural, and economic aspects rather than pace-oriented. Similarly, "right time" [19] mentions cultural dimensions, "collective time" [8] looks at the time from the intertwined rhythms with whom people are sharing time in a connected way. "Plastic time" [14] examine time through intertwined rhythm (primarily) with technology in non-work settings from its quality perspective (not anticipated, not immersive, fluid...). These new perspectives on time expand our understanding of time beyond a clock-focused fixed definition and help us innovating for the less explored domain of retired people's daily routines and their use of time.

In this late-breaking work, we aim to coin the following questions: how is time defined and lived by retired people? How can new insights about retirement time be evaluated to create new ways of sharing, measuring, or managing time once clock time is not the status quo? First, we share initial findings from semi-structured interviews with retired people on their daily routines and their changing experiences around collective rhythms and quality of time. Secondly, we propose an artefact, a concept of "Meaningful Multitasking Chair," with two versions, designed upon initial findings and positive design guidance to be used as a probe in the next stages of our research. The purpose of this artefact is to learn more about rhythms and the quality of time in retirement.

## 2 STUDY

As a part of a design research project, we conducted semi-structured interviews on how retired people define time and organize their interactions with time. Interviews consisted of open-ended questions about participants' daily routines before and after retirement regarding time perception. The context of interview conversations is mainly about their routines at home and workplaces, changes in daily activities and experiences of time by retirement, and how they spend time compared to their pre-retirement periods. We conducted four interviews until now; they took place via video chat (due to pandemic) and lasted between 45-80 minutes. As we plan co-creation activities for our project's later stages, we chose participants from the same neighbourhood. We recruited participants based on referrals from retired people. The participants are between

60-72 years old, and all can use at least one video chat tool. Three participants live with their spouses, and one participant lives alone.

All the interviews are transcribed from the voice/ video calls. We analyzed four interviews according to deductive thematic coding [2] and applied the pre-selected code set to the interviews. The articles from which the codes were created were selected via keywords search from ACM digital library, using keywords “time” and “HCI.” After the papers were collected, we carefully selected the ones with direct design connections for time concepts other than clock time (such as design implications, provocative artefacts, or theories that can inspire design). The transcripts were scanned, and time-related narratives were categorized. For our first cycle, we used two emerging concepts: Collective time [8] related narratives of retired participants’ such as how they share time with family members & friends, and plastic time [14] related narratives around examples of negative space of busyness or multitasking activities.

### 3 INITIAL ANALYSIS

Even with four interviews, we see that retirement time can be perceived positively or negatively according to participants’ perspectives. While two of the participants highlighted the good sides as an opportunity to have freedom and flexibility of filling time on their will, the other two participants complained about retirement’s immobile and unproductive nature. Both rhythms and quality of time were frequently mentioned in relation to how participants experience time. In the below sections, we share the initial insights on two main categories: (1) Collective Rhythms of Time and (2) Quality of Time.

#### 3.1 Collective Rhythms of Time

HCI time theories consider different types of rhythms for the perception of time. While slow design [17] indicates the pace as an essential asset, collective time [8] concentrates on the ownership of intersecting rhythms, such as with whom the rhythm intertwines. Lindley et al. [8] suggest looking at the time through intersections of people’s daily temporal experiences rather than fractured rhythms of individuals. We analyzed the participants’ experiences focusing on the rhythms defined by the participants.

**3.1.1 Shared Time as Fast and Prioritized.** All 4 participants mentioned a preference for sharing time with others as time passes faster and with pleasure once together. Participants find time boring when they are alone, whereas sharing time with others makes it meaningful and faster as P3 explains: *“When you spend time individually and alone, it becomes more boring. It is monotonous when there is no human contact, and I don’t like it very much. Also, when you spend time with friends, you don’t understand how time goes by.”* Considering pandemic conditions, P4 (living alone) associated not having social time with others is like *“a stroke.”* We can infer that no social time with people for P4 equals having a pause on time at some point.

**3.1.2 Intertwined Rhythms defining Collective Life Plans.** Our initial data analysis showed that the participants have intertwined rhythms as determiner when they are entangled with a continuous commitment such as being a father, mother, or spouse. We observed

this type of relationship could affect a person’s retirement time planning, as explained below.

All 4 participants explained that they did not have any significant plans for their retirement period or now. They gave a similar example of *“going to a countryside near the coast and having a cozy home, fishing or chilling”* and how achieving this scenario does not work in Turkey with regards to economic aspects (P1, P4) and cultural bonds with family (P2, P3). P2 mentioned this scenario might happen if her daughter with her spouse moves to the countryside first. Similarly, P3 said he has a close relationship with his relatives, so he needs to support them for weddings, funeral ceremonies, or health problems. P3 wants to maintain this as his ancestors did: *“Since we did not break from our ancestors and grandfathers with our traditions and customs, we could not enter into an independent lifestyle. For this reason, we did not have a goal within a plan and program.”* We also analyzed participants who had intense intertwined rhythms within their families and didn’t prefer to make individual plans for their future time. Still, they consider the whole family collectively (even though they don’t live together or spend time together) while planning, which seems more meaningful, valuable, and favorable for their cultural infrastructures.

**3.1.3 Interdependent Intertwined Rhythms.** Another intertwined rhythm was a shared rhythm that can be modified by both parties, depending on the individuals’ needs; this we named an interdependent intertwined rhythm. P1 and P2 shared such a rhythm while they told their daily routines after retirement. P2 defined her “personal time” as having a coffee and playing with her phone before her spouse woke up: *“First, I get up in the morning and spend 1, 1.5 hours for myself. I drink my coffee, and I take my phone; I look at them on social media. Then I play some games. Sometimes that 1.5 hours become 2 hours until he (her husband) gets up. Until then, I do things completely for myself.”* We infer that after her husband wakes up, her rhythm changes accordingly. P1 also mentioned her husband compared with others regarding intertwined rhythms: *“After retirement, my life has become very boring. Because life before retirement is so different, this is related to the person and the character. I am a very active person, very productive, very giving, very active in business life for others. But in my daily life, I am a very indulgent person that I can postpone things; it is also okay if I don’t even do. This is also related to my husband’s character. Since my husband is a relaxed, understanding, non-disturbing person, I can pass everything on. But if my husband were not like that, my personality treat would end up as a stereotypical woman’s routine, which is getting up in the morning, making his breakfast, doing housework, then how much time can she devote to herself in these conditions of life.”* Here P1 also mentions how she was active and efficient when she had a work-life and engaged with work rhythms and how supportive her relationship was during all the busy years. With retirement, P1 lost her active rhythms, and she defines herself as not efficient anymore individually. Also, P1’s interdependent rhythm with her spouse is flexible and not dictating her time than typical wives of her generations that some daily routines were expected responsibilities to be done according to spouses’ rhythms. So interdependent rhythm within spouses can be defined by one or another, in a day or during the whole life, which affects how they organize their time. Especially after retirement, as they may spend more time at home,

interdependent rhythm might become a strong determiner to shape their experiences.

Lindley et al. [8] highlight the importance of focusing not just on technologies but the rhythms and routines of people with whom they are entangled. We also observed how experiences of time could change depending on people's intertwined rhythms, those rhythms being part of broader lifetime goals or being shared in daily routines (e.g., between spouses). Doing things alone and with other people, or even the imagination of making things together, will make a difference as retired participants of this study noted more pleasure and meaning with spending time collectively with their family and friends. Looking to later life experiences with this respect can enhance our understanding of such connections. It can further help designers to design products or services that serve positive design [3] for later life. On the other hand, looking at the interdependent intertwined rhythms within the family, we observed some limitations on organizing their time due to their family bonds & cultural infrastructure needs and responsibilities. Hence, while looking at time experiences, we suggest evaluating collective and intertwined rhythms considering cultural aspects [13] and interdependent rhythms to design for a better quality of later life.

### 3.2 Quality of Time - Avoid Plasticity, Meaning Matters

Plastic time is described as unplanned, shrinking, and expanding, often non-immersive and open to interruption & multitasking, flying under the radar, not systematically related to themes like productivity or leisure for defining qualitative experience integrated with technology in non-working settings [14]. Our participants gave examples such as watching tv, spending time on social media, and playing mobile/computer games that fit the definition of plastic time, having the plastic characteristics like the negative space of busyness, being open to multitasking & interruption, and flying under the radar. Below, we explained plastic time findings related to the particular routine/interaction.

**3.2.1 Unwittingly Passing of Time – Flies under radar.** Two participants (P2, P4) mentioned that time passes unwittingly faster while they play online games. They define these times as not useful but joyful. P2 prefers playing games when she wants time to pass quickly, explained as: *"Sometimes we want time to pass, the evening to come immediately; sometimes time has to run out, for example when you are bored with something. There this is my biggest savior. While playing that game without thinking, the time that I wait for has come."* A joyful time consumption practice can be a critical signifier for a wish to "just pass some time to reach an end (like an evening plan with family members)." Sometimes plastic time can be a planned period to help the time pass faster unwittingly.

**3.2.2 Avoiding Plastic Time.** Participants mentioned the importance of having time for meaningful activities and avoiding or restricting plastic activities like TV watching, social media, and playing games. We analyzed that P2 and P4 were multitasking in plastic times; in other words, they tried to add another layer of time (another plastic or useful activity) to decrease plasticity or attach meaningful activity. P2: *"After I finish my routine work, I am*

*knitting in front of the TV or playing games on the phone in front of the TV. So, I never like to sit straight and watch TV like that, and I will always linger with something. These days I knit in winter; other times I play games on the phone"*. Similarly, P4: *"In the evening, when I am looking at something on TV or looking at our TV series, I have a phone. I'm looking at both the TV and the phone. It's like chewing gum while walking (laughs). Because the series is something you open to pass the lousy time or clear your head, and in the meantime, I write my word (in the game)." For P4, sometimes social times can be considered as a plastic time if there is no context. She explained how she tried to add meaning to those times: "I don't want the conversations to be empty anymore, I plan a book-reading day or a movie-watching day, now we are starting with the little prince (the book). Because sometimes I get bored even while chatting, there is that socializing part, or it slips to subjects that I don't want, sometimes I don't like it. (When chat has a content) it is more like an activity for me, and it passes faster. It should be a deeper conversation, so that time does not pass empty"* P4 avoids even chit-chatting in shared times when there is no context in it as she gets bored during those useless times. Also, participants gave examples of finishing a book that was waited so long (P2). Producing handmade silver jewel (P4) is so meaningful and makes them happy while spending time doing those tasks as they have an output from those times. We may associate this perspective depending on the regular practices of their working times. They were used to work on outputs and considered themselves more useful compared to their retirement period. All participants mentioned working as a good thing, the main issue they complained about is the intensive working hours /conditions. Yet, they all said their willingness to have part-time or flexible working options.

On the other hand, P3 mentioned restricting himself from spending time with social media: "For example, I use all of them (social media, internet...), but I do not use them much, I say the less I use, the better. Because it is addictive, it seals you in a box, and when you get too deep into the subject, it feels like when you watch a movie in the dark and then when you go out to the sun, you feel like where I went, you get confused." According to him, spending much time on digital technologies (internet, social media) can cause a negative consequence like an addiction. It can lead to adaptation problems when a person switches from the digital world to the physical world. Also, P2 and P4 tended to restrict their plastic activities and desire to fill their times with useful activities.

From the initial analysis, we observed some routines that showed plastic time's [14] characteristics, like being the negative space of busyness and openness to multitasking. According to our analysis, plastic time activities have no meaningful output that is useful for retired people. Although participants mentioned joy during their gameplay experience, they preferred to spend time with more meaningful activities instead. Even they feel guilty playing online games, which leads to creating negative space around the experience. Moreover, as plastic time is open to multitasking, participants combine plastic time with other activities to decrease plasticity. With this respect, we also observed plastic time as a degree suggested by Irani et al. [6] to describe the quality of time depending on the context and engagement level of a particular interaction. We can say that retired participants used strategies like attaching a useful layer to plastic time or restricting the content that makes the time

feel plastic to decrease the plasticity and increase the meaning of the time.

We suggest designers inspire from the activities of retired people in their plastic time. Plastic time is a space for understanding how retired people used strategies to push back the plasticity of time, claiming joy and meaning via multitasking or increasing the content's depth. Hence this perspective may help achieve positive design [3] in later life, which we tried while creating the following design artefact.

### 3.3 Designing Artefacts as Probes for Future Works

According to preliminary findings, we observed that participants were constantly seeking meaning in time through their routine activities. For instance, participants shared their pleasure for achievements with outputs like the finished book, produced jewel, or time spent with family and friends. When participants think that the activity lacks meaning or usefulness, such as plastic time activities (mobile/computer games/TV/social media), they attempt to avoid or restrict the activity. Although they feel joy playing games, they might still prefer to put another layer of activity (multitasking) to decrease plasticity. At this point, we wondered how forming a new interaction (e.g., a probe [10]) relying on participants' routines and preferences could provide more meaningful experiences. Hence, we decided to design an artefact that we plan to use as a probe for the next stage of our study to research more about the possibilities of retired peoples' perception around collective rhythms and quality of time. Here, we propose Meaningful Multitasking Chair as an artefact (with two versions) derived from retired participant's routines and designed with the guidance of positive design theory [3] to discuss whether we can create positive experience through what we have learned from their routines. The first version is for individual use to explore more about personal time rhythms & quality for meaning; the second version is for the dual-use to learn more about intertwined familial rhythms and meaning.

**3.3.1 Meaningful Multitasking Chair.** As we mentioned above, we designed the artefact depending on the insights gained from the study findings. Two participants (P2, P4) mentioned multitasking as a routine. Combining different activities like playing mobile games or knitting while watching TV helps reduce the meaningless of TV watching. P2 specifically mentioned her avoidance of just sitting without doing anything. We infer that during the TV time, they would like to produce/ accomplish a thing. Also, P3 mentioned avoiding or reducing plastic time activities, or P1&P3 complained about retirement as being inactive, not working, not producing useful outputs after all. So we tried to provide meaning within the chair itself while watching TV, playing mobile games, or just sitting on it. Hence, we speculate a Meaningful Multitasking Chair design that generates a meaningful output that can be energy-saving, churning, knitting, or something else. Here in this late-breaking work, we focused on the energy-saving idea. Still, we aim to find further possibilities with participants for the multitasking part during the next research stages.

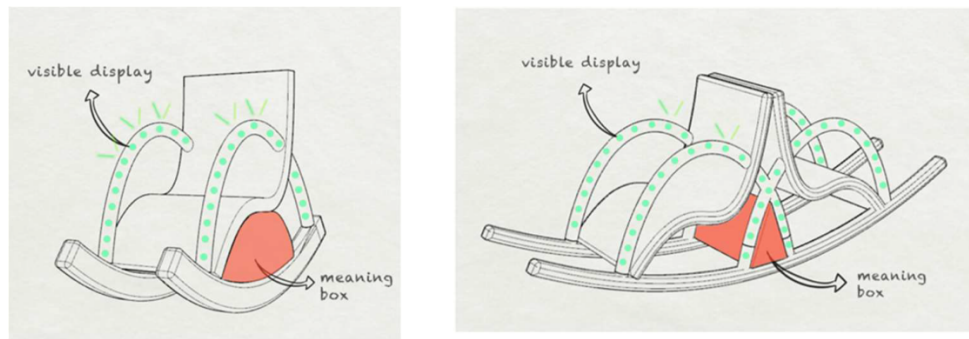
In this initial version of artefact, the Meaningful Multitasking Chair saves energy when a person rocks on this chair; hence lighting display shows the progress of energy savings that we call the

meaning box. The meaning box refers to output as participants mainly associate meaning with outputs in the study. Another point is that the chair itself works, produces, and achieves things as the user intertwines with it. We were inspired by Long Living Chair [12], which is concerned about digital traces' temporality. The design has motion sensors and a digital display representing a particular time span (hours/years). Unlike Long Living Chair, our initial artefact, Meaningful Multitasking Chair (Figure 1), does not represent conventional time spans but displays the progress of usage as an indicator of saving level, located in a visible area of the chair to engage the user. Here, the chair focuses on the quality of time associated with meaning in the findings rather than the duration. While ideating for the Multitasking chair, we paid attention to positive design's three essential requirements: pleasure, significance, and virtue [3]. It is a rocking chair as it is a joyful form of sitting activity which we can relate to pleasure experience. The progress display of saving energy refers to the user's meaningful goal, which can refer to significance. The chair's last aspect is serving virtue by a caring environment, responsible for nature, and being a morally good person. With this design artefact as a probe, we aim to observe the change in time perception of retired people (if there is). Would this interaction with the Meaningful Multitasking Chair contribute to a positive experience in later life? Does it have the potential to provide support for changing the perception of plasticity? Can this probe help us gain further insights about time perceptions of how sitting open spaces for new forms of interactions?

**3.3.2 Dual Meaningful Multitasking Chair.** Dual Meaningful Multitasking Chair (Figure 1) is another version of the initial artefact to question interdependent intertwined familial rhythms. In this concept, we concentrated on raising awareness around collective goals as a way of creating meaningful interactions. The chair has two sides of direction. (For dual-use, we also considered facing each other option, we are planning to test the chair options to understand people's choice). Two sides have personal areas yet are still intertwined. The challenge in this version is to decide who will sit on the TV seeing side (or a good scene from the window) or how they define the rhythm of the chair—besides, storing more energy with the dual usage motivates collective use. The aim is to understand how people negotiate on their interdependent intertwined rhythms. Can Dual Meaningful Multitasking chair be a mediator to provide a pleasing and meaningful experience within the interdependent intertwined rhythms? Or can this dual chair help us as a probe to learn more about intertwined familial rhythms? What kind of possible conflicts can arise for collective use (like arranging shared times)?

## 4 CONCLUSION AND FUTURE QUESTIONS

In this paper, we shared the preliminary findings from our study conducted with retired people. We examined the daily experiences of retired people from the lens of two emerging time theories and proposed design artefact with two versions derived from the study findings in the light of the positive design approach. We aim to explore how retired people define time via these artefacts. Through probing new time-related interactions based on insights, we aim to create positive experiences for later life.



**Figure 1: (Left) Meaningful Multitasking Chair, (Right) Dual Version of Meaningful Multitasking Chair**

Hence, we would like to pose three future research questions to the HCI community:

1. How can technology help to create meaning in daily interactions regarding the quality and rhythm of time for positive experiences in retirement?
2. How might intertwined familial rhythms affect the perception of time in later life and inspire different approaches for designing collective use of technologies?
3. How can HCI researchers benefit from the retired people's experiences of time and design new interactions for positive design?

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