



IMPROVING WORK-FROM-HOME SATISFACTION DURING COVID-19

Helping homeworkers manage work and family together for better work-from-home satisfaction.

Master Thesis Report

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Before you lies the report “Improving Work-From-Home Satisfaction During COVID-19”, the core of which deals with the design of a self-assessing mechanism to improve personal satisfaction of home working individuals while tackling home and work activities together. It has been written to fulfill the graduation requirements of the Design for Interaction Program at the Industrial Design Engineering faculty at TU Delft. I was engaged in researching and writing this report from April to October 2020. Throughout the writing of this report, I have received a great deal of support and assistance.

I would first like to thank my chair, Dr. Ir. Tomasz Jaskiewicz, and mentor Dr. Ir. Natalia Romero Herrera whose expertises were invaluable in scoping the topic, formulating the research questions, and using the right methodology. Their insightful feedback pushed me to sharpen my thinking and brought my work to a higher level.

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I hope you enjoy reading.

Bibin Parukoor Thomas



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**Happiness
is really a deep
harmonious inner
satisfaction and
approval.**





Introduction

This project deals with the creation of mechanisms for self-assessment in work-from-home (WFH) environments to enhance people's satisfaction.

Telecommuting popularly known as work-from-home is a work arrangement in which employees do not commute or travel (e.g. by bus or car) to a central place of work, such as an office building but work via technology (online tools) [1]. Globalization and the rise of technology have changed the nature of the workplace today. An integrated architecture, design, planning, and consulting firm - Gensler's 2020 U.S. Workplace Survey showed that 60% of people work outside of their office for various amounts of time during the week, 48% have a choice in where to work, and people spend 14% of their time in virtual collaboration already. This shows the rise of the acceptance of virtual working globally. This trend is changing how workspaces operate. We see more and more employees working in remote/virtual positions, either full-time or some days of the week, with a large percentage of the workforce looking towards finding job opportunities with flexible schedules. This situation has been magnified during the time of the COVID-19 crisis when most corporate employees were forced to work-from-home or work virtually.

During the COVID-19 crisis, the workspace for an employee has essentially become sitting at home and working online. It is no longer a privilege and has become the new normal. Working from home can be an

opportunity to find new ways to work creatively and connect with the number of digital tools (video conferencing, file sharing, etc) available today. This affects the homeworkers' well-being (and personal satisfaction) as this working style is influenced by multiple factors such as ergonomics, ambiance, and work-life balance. Regardless of how long COVID-19 restrictions will be in place, we can expect that working-from-home will remain a trend.



Scope of the Project

This chapter explores the range of opportunities for enhancing homeworker's satisfaction in the context of COVID-19 restrictions. The research questions aimed to be achieved with this project are also listed.

In the wake of the COVID-19 crisis, industries had to radically shift to a work from home mode. Therefore, the discourse on workplace wellness has now shifted to how to work virtually — and how to do so effectively. Various factors affecting telecommuting include the technology, location, ergonomics, noise...etc. There are also psychological aspects to the work-from-home (WFH) practice such as fear of performing sub-optimally and missing out on networking and social events with your colleagues. All of the above factors influence well-being. Satisfaction is a key indicator of subjective well-being here [2] and is defined as the fulfillment of one's wishes, expectations, or needs, or the pleasure derived from this.

Working-from-home during COVID-19 has also led to many challenges including[3];

1. One can get disengaged from colleagues and supervisors because one works from home.
2. Working-from-home may cause multiple interruptions. One has to go and attend visitors, cook for the family, clean home, and supervise kids.
3. Work from home makes an employee detached from his / her company and the employee's lack of community feeling and attachment to his / her company.

4. It needs commitment and devotion to self-motivation and to be proactive, agile, and resilient on behalf of employees that would otherwise lead to non-productivity.
5. WFH does not foster communication and association with the company due to the lack of a psychological associate.

Work from home isn't as easy as it seems to be. To perform well, this requires a full commitment to work activities. There is a need to segregate personal and office domains while following the concept of working from home.

The challenges have a direct impact on the physical and mental well-being of the worker. Well-being, which is commonly conceptualized as feeling good and functioning well [4] is difficult to assess in the WFH scenario, as employers don't have direct physical access to the employee or his/her working conditions. This leads to decreasing the psychological association of the employee with the employer. So it is majorly up to the employees to take care of their well-being. This brings up the lack of availability of a system to track and trace well-being during COVID-19. When considering well-being at home during COVID-19, it is a combination of work-life and family-life (personal) well-being. Satisfaction, being a major measure of well-being is divided between homeworkers tackling work-related and private activities during COVID-19. Doing this well may lead to better personal satisfaction. The lack of a tool or system that helps them achieve this



satisfaction is highlighted due to challenges mentioned above. To encourage homeworkers to explore different options to jumble work and home activities, the system needs to provide back information supporting this need. Combining the above ideas brings self-experimentation into the frame. Self-experimentation is a data-driven approach in which the individual experiments on himself/herself, using experimental designs of a single case. [5] To promote this, homeworkers require a mechanism that enables them to track and use their information to make better decisions to increase work-from-home satisfaction.

The satisfaction of people has several dimensions, such as working conditions and work-life balance. The promising opportunities for increasing people's satisfaction include leveraging self-experimenting across people's work and private activities. The intention is to figure out how to make the self-tracking engaging (not monotonous) and keep homeworkers motivated to do so.

This project dwells into the prospect of WFH satisfaction and the following research questions stem from the project challenges;

Q. How do the homeworkers interpret WFH satisfaction?

The core of the concept depends on the meaning of satisfaction at home. In order to find that, we need to understand what balancing both work and family life mean to homeworkers during these unprecedented

times.

Q. What are the determining factors for WFH satisfaction?

As the dynamics of working-from-home have changed during COVID-19, we try to identify the hurdles and challenges that determine the personal satisfaction related to the WFH working style.

Q. How can we make self-experimenting more engaging?

Tracking and tracing one's own activities during COVID-19 may lead to a lot of monotonous data entry. This is where we would need to figure out how to make data logging more engaging and interactive to make sure homeworkers stay motivated to keep to it.

The project focuses on increasing WFH satisfaction by incorporating self-experimenting into work and family activities. This relies on the determinants of satisfaction and how homeworkers relate to personal satisfaction during these days of forced working-from-home.



The Journey Ahead

The project started from a literature inquiry into elements of homemaker well-being contributing to their satisfaction and then contextual exploration to confirm what work-from-home satisfaction translates to, in everyday life during COVID-19. The literature review was followed by a design process. The design started by identifying the challenges for satisfaction and designing for those determinants. This leads to an initial concept of the 'shift ritual'.

Refining this design enables the discovery of the final concept: the 'Ritual Cube' which facilitates the shift ritual. The final phase is about prototyping, testing, and evaluating the use of the ritual cube to make sure it works as intended or surprises us with other results.

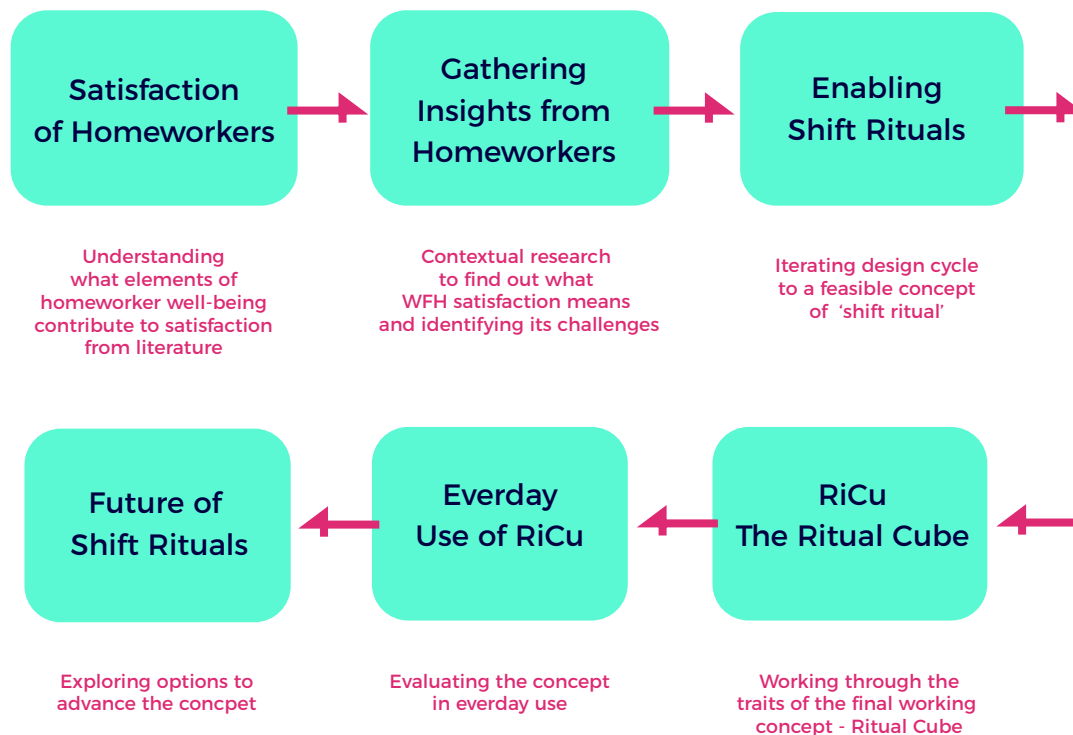


Fig. 1. Walking through different stages of the project



Satisfaction of Homeworkers

This chapter investigates, based on literature, what factors relating to homeworkers' well-being are relevant for (improving) their satisfaction. The impact of COVID-19 to the traditional work-from-scenario is explored to find out particular determinants of satisfaction, arising due to the unprecedented scenario.



Working from home demands a brand-new workstyle and pace — one that balances the requirement to serve your customers, collaborate with teams virtually, stay connected to colleagues, and churn out time for focused individual work.

Over the past decade, telecommuting has expanded exponentially, up 115 % since 2005, providing many benefits to employers, staff, and society. [6][7] Companies are actively offering workers the telecommuting option, but many workers are reluctant to take full advantage of the work arrangement. Past research has shown that, when perceiving the job arrangement, individuals appear to have a negative attitude toward telecommuting with more drawbacks than benefits. [8]

Telecommuting can mean that long-distance commuters can spend more time at home. It is not always possible to organize this to fit in with the work schedules of colleagues. Family, housing, and other considerations, including transport, also play a role in such an arrangement. [9] One particular downside is the experience of workplace pressure which contributes to employees' fatigue at bedtime. [10] It is crucial to take the consequences of technology-related changes at work seriously. An organization's future competitiveness might be at stake if it does not do so.

Telecommuting can positively affect employee behaviour when incentives are aligned through a selection effect. However,

working outside the conventional workplace is not ideal for all tasks. When performance is difficult to measure, it can lead to more self-interested behaviour.[11]

Telecommuting influences which employees engage in job-related tasks outside the workplace, as well as how they perform. While it can be beneficial for organizations to have highly motivated employees engage in the tasks when telecommuting, the availability of reliable performance measures that help to align incentives are key to maximizing the benefits associated with the implementation of telecommuting [12].

Teleworking is a type of work, where we can record variables linked to physical health and mental well-being, such as life satisfaction, wellbeing, and burnout (emotional fatigue, depersonalization or cynicism, and decreased personal achievement) syndrome [13]. Early surveys were used to focus on happiness and satisfaction

It is indeed difficult to measure well-being parameters being at home and having no access to various facilities. Webster's defines well-being as the state of feeling healthy and happy[15], but it can still have different interpretations for various individuals. It has been assessed and agreed upon that satisfaction is indeed an effective evaluative response to the WFH[16]. Satisfaction is also a commonly used outcome measure in studies of remote work [17].



Therefore, consistent with earlier telework researchers, employee satisfaction when WFH was measured instead of overall job satisfaction.

Traditionally organizational factors that affect WFH satisfaction and productivity include Management culture, technical support, manager's trust, human resource support, financial support for WFH and more training [18]. These tended to focus more on employee satisfaction rather than productivity itself. On an employee level, the concerns are regarding individual work style (eg: planning for the day, properly ending the WFH day, choosing a place to work) and household characteristics (eg: kids, family chores) [18]. Telecommuting being an option used popularly once or twice a week, helped employees in reducing commute and getting more work done ie. more personal productivity (with spatial and temporal flexibility) [17].

During COVID-19 things have changed a bit. WFH well-being now includes not only being an employee but also a complete family member at the same time. Although they have control over their environment, the uncertainty of the pandemic put on stress for homeworkers. During these times they were forced to stay indoors and juggle work and family together, which made the line between professional and personal life pretty vague. Homeworkers practicing a minimal exercise (<0.5 hrs/day) were found to have more satisfaction than those doing excess or no exercise at all [19]. Positive

spillover between work and home (taking prominent roles in both domains leading to the acquisition of skills and social assets) also lead to more satisfaction. Experiences in the family domain have the potential to create positive and negative interdependencies, whereas the work domain is more likely to have negative effects on life satisfaction [20]. WFH well-being will thus include the personal wellbeing (physical & mental) of the homeworker, playing different roles during the day.



Fig. 2. Sorting out determinants of satisfaction



WHO-5 Index

The WHO (Five) well-being index (WHO-5)[Appendix 1] is a global standard in mental well-being. This is a five items index rated on a 6-point Likert scale. It is based on subjective quality of life based on positive mood (good spirits, relaxation), vitality (being active and waking up fresh and rested), and general interest (being interested in things). [21]

The same scale was used to compare pre-COVID 19 and during-COVID well-being of workers [Appendix 4]. There turned out to be an approximate 15.5% decrease in emotional well-being amongst these workers. The workers included individuals from different domains handling various kinds of tasks. The assumption here was some sort of work-life imbalance contributing to this decrease in well-being.

Literature shows that work-related and family activities have a particularly strong influence on each-other when working from home, as the individual plays both roles of the employee and family member simultaneously. The opportunity here is to leverage the positive aspects of the spill-over from work to family and the other way round and thereby improve satisfaction in both areas.



Fig. 3. WHO-5 Well-being score before and during COVID 19



■ Changing Homeworkers' Behaviour

Positive integration of private and work-related activities of homeworkers requires a change in their behaviours. When handling household chores during the work hours, tasks like picking up a kid from daycare or cooking a meal during office times can lead to messing up the day's schedule and cause extra stress to homeworkers. Although it might be hard to jumble between work and private life, homeworkers may be able to pull through with proper motivation and planning. This chapter summarises relevant theories and approaches to this end, which act as a starting step to approach WFH satisfaction more systematically.



How Self-Determination Theory Influences Behaviour

Self Determination Theory(SDT) is a human motivation macro theory that has been applied successfully across sectors including parenting, education, health care, sports and physical activity, psychotherapy, and virtual worlds, as well as work motivation and management. [22].

SDT focuses on the idea that human existence has consistent positive characteristics, with people displaying regular initiative, agency and dedication in their lives that the theory calls "inherent growth patterns." People do have inherent psychological needs, which form the foundation for self-motivation and integration of personality.

SDT identifies three innate needs, which allow optimum function and growth if satisfied.

+ **Competence**: Seeking to control the outcome and experience mastery

+ **Relatedness**: Will to interact with, be connected to, and experience caring for others

+ **Autonomy**: Desire to be casual agents of one's own life and act in harmony with one's integrated self.

These needs are seen as universal necessities that are innate, not learned (instinctive), and seen in humanity across time, gender and culture.[23] These three basic psychological needs must be satisfied to foster well-being and health.

SDT conceptualizes motivation as multiple distinguishable facets, each representing a different form of behavioural regulation. Identified regulation and intrinsic motivation, are autonomous forms of motivation. Internalized regulation occurs when an individual elects to act because the behaviour or the outcome of the behaviour is of personal significance. Extrinsic motivation occurs when behaviours are enacted for an instrumental reason. SDT proposes that extrinsically motivated behaviours can be internalized to become autonomously regulated. [24]

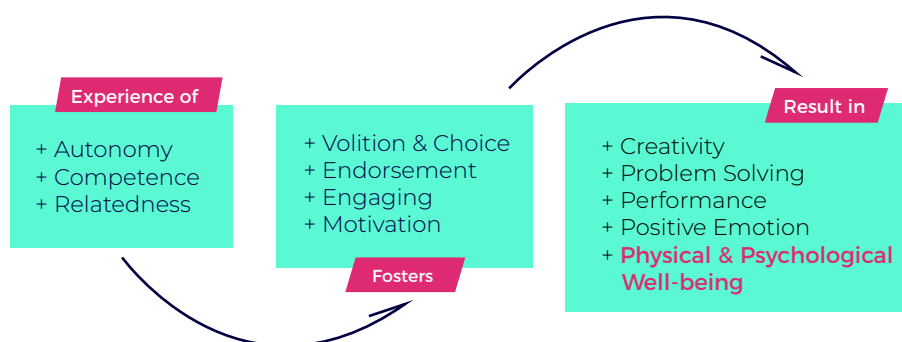


Fig. 4. Ryan and Deci (2000) – Self Determination Theory Model



Autonomous motivation is characterized by people engaging in an activity with a full sense of will, will, and choice. Often, autonomously regulated activities are intrinsically motivated. Perhaps more important for the workplace, but extrinsically driven practices may also be autonomously motivated under the right conditions, that is, dedicated to honesty and vitality. When individuals understand the importance and intent of their work, they are likely to be more self-motivated and perform better.

SDT explicitly states that both the productivity of the employees and their well-being are influenced by the kind of motivation they have for their job.[25] Therefore, SDT differentiates motivation types and maintains that different motivation types have fundamentally different catalyzers, concomitants and consequences. This includes both extrinsic and intrinsic types of motivations. Intrinsic motivation is the spontaneous experiences of interest and enjoyment entailed in an activity. It is a ubiquitous human phenomenon, exemplified in the play of children. It's also evident in the activities of adults, such as sports and avocations. Employees can be intrinsically motivated for at least parts of their jobs, by which they tend to show high-quality performance.[25]

While extrinsically motivated behaviour involves acting to achieve a separable consequence, whether tangible or otherwise. That is, extrinsic motivation encompasses all instrumental behaviours. SDT has, for a long time, differentiated extrinsic motivation into various forms, each encompasses all instrumental behaviours. SDT has, for a long time, differentiated extrinsic motivation into various forms, each of which is recognizable at the workplace and ranges from being less autonomous to being more autonomous.[22]

Hence, the most ideal way is to create an environment within which individuals will motivate themselves.



Actions Leading to Behavioural Changes

To establish and assess successful behavioural strategies, understanding the mechanisms by which behavioural change techniques (BCTs) can alter behaviour is important. Interventions on behavioural change have the potential to improve health, reduce expenditure on premature mortality, disability, and health care. [16] Successful strategies that contribute to a lasting change in behaviour are required to accomplish this. Identifying the potentially active ingredients is important within an intervention. In an intervention, the potentially active ingredients (BCTs) are those aspects of an intervention that produce a behavioural change. Mechanism of Actions (MoAs) are processes that affect behaviour, through which BCTs make their effect. MoAs and BCTs are not directly relational in all cases [26].

For example when we consider a technique like 'goal setting', it may be positively affected through the right MoA - here 'behavioural regulation' (behavioural, cognitive or emotional skills required to manage or change behaviour). This might not be the only MoA leading to this BCT. Similarly a different technique like 'action planning' may also be affected by the same MoA of 'behavioural regulation'. These kinds of strategies and linked MoA's help us in the synthesis and evaluation of right interventions that may lead to the required changes in human behaviour.

To tackle the satisfaction level of WFH wellbeing, we looked at the different types of BCT's categorized by earlier studies [26] and found out techniques related to self-experimenting. Interestingly multiple BCT's are related to the same MoA's.

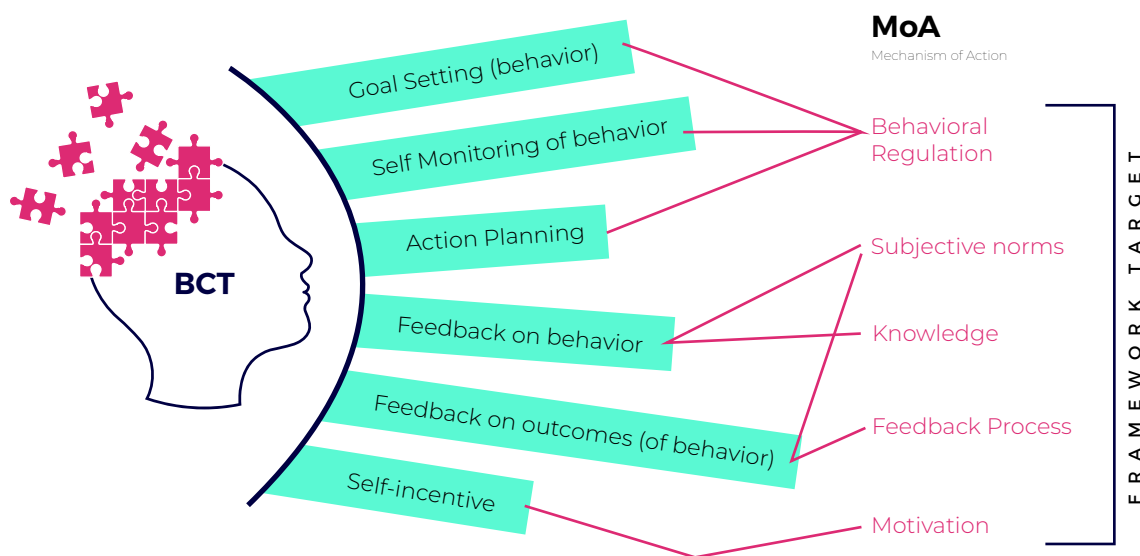


Fig. 5. Example behavioural change techniques linked to different mechanisms of actions that are probable to be included in our system



Self-Experimenting For Behaviour Change

Self-experimentation is a data-driven approach in which the individual performs the experiment on himself/herself, using experimental designs of a single case. [27] Such studies are conducted as the sole unit of observation with a single individual. Here, the individual is subjected to each intervention used in the test, and the effect is measured by comparing in-person outcomes under each intervention (or a baseline / usual routine intervention). Such experiments account for the heterogeneity in the response to treatment and offer a unique opportunity to personalize interventions by allowing individual-level categorized decision making. The emphasis is not on creating generalizable knowledge, but on aiding self-discovery and creating scientifically based self-awareness, beyond relying on intuition.[28]

One way a person can find out if a given intervention works for them, is through self-experimentation. There are opportunities to develop tools that allow end-user changes in behaviour selection and customisation techniques.

This aligns with the practices individuals engage in when trying to find their answers. A number of studies investigated the self-tracking needs and methods for data collection and analysis of individuals in order to empower end-users in their own self-discovery process. In order to improve such self-discovery, Karkar et al.[29] created a framework for Self-experimentation involving formulating a hypothesis, conducting robust n-of-1 trials to support evidentiary decision-making and evaluating findings to promote more research and analysis.

Consumers interested in learning how specific behaviours (e.g. foods eaten) affect a symptom or other clinically related behaviour could use the framework. A complementary collection of tools assisted individuals in choosing and personalizing behaviour-change strategies and then, through self-experimentation, analyze how those techniques help an individual initiate and sustain a behaviour called behaviour-change self-experimentation.[29]

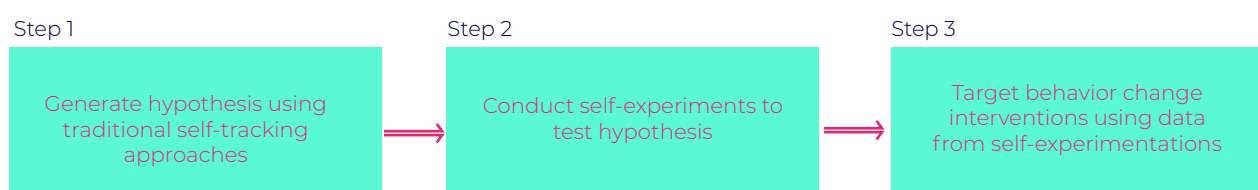


Fig. 6. Kakar et al.'s overall self-experimentation framework



To adequately characterize the integration of self-tracking into everyday life by people with varying goals we look at different models of tools which help people collect personal information for self-reflection and self-monitoring purposes (a.k.a. personal informatics):

Li et al.'s model on personal informatics [30]

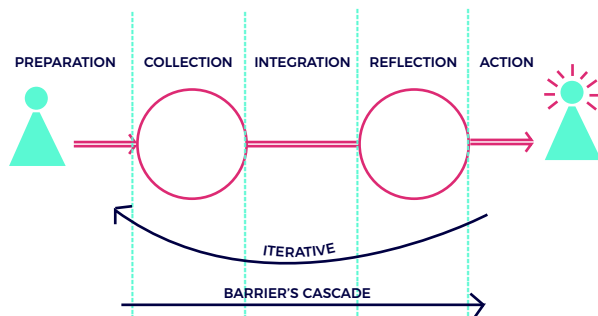


Fig. 7. Li et al.'s model on personal informatics

This is a five-stage model of personal informatics: 1) preparation, or starting to collect data and thinking about what information to record and how to collect it; 2) collection, or gathering data; 3) integration, or preparing data to reflect upon; 4) reflection, or examining and exploring data; and 5) action, or taking one's newfound understanding of themselves to inform changes. Li et al. identifies two phases of reflection, discovery and maintenance. Primarily informed by tracking toward behaviour change, the model emphasizes data barriers toward a presumed action. However this did not address the challenges in lived informatics.

Epstein et al.'s lived informatics model on personal informatics [31]

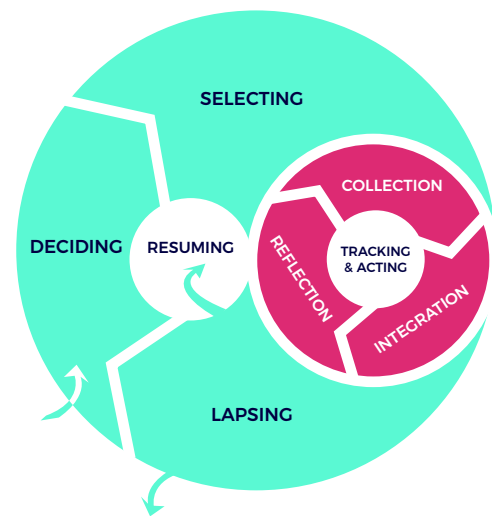


Fig. 8. Epstein's et al.'s model on personal informatics

Epstein divided the preparation stage of Li et al.'s model into two stages: deciding and selecting. The deciding stage refers to the decision to track personal data. This stage mirrors the precontemplation and contemplation stages of the Transtheoretical Model of behaviour Change. Following the decision to track, people select a tool with which to track. Tool selection can depend on features, aesthetics, and convenience. Self-trackers learn more about their behaviour and make changes to their practices while they collect and integrate data.[32] The practice of tracking and acting is defined as the ongoing process of collecting, integrating, and reflecting.

Different Motivations for Deciding to Track [31]

Epstein et al.'s model defines three types of motivations for self-trackers: behavioural



improvement, instrumentation and curiosity. Such initial reasons determine how self-trackers use the method to pick, use and lapse.

Behaviour change goals: behaviour change goals can motivate someone to start tracking. Personal informatics tools can support such goals. Individuals using such trackers intend to change their behaviour if they notice something they find concerning.

Instrumental tracking: This kind of tracking is without the goal of changing behaviour. Some are motivated to track by rewards that data about their behaviours can unlock.

Curiosity: People describe thinking tracking would be "fun", "cool", "neat", and wanted to "try it out" Curiosity is often driven by a desire to keep up with new technology.

The model captures self-tracker activities with such diverse aims, offers a deeper understanding of how to use self-tracking devices, and helps future designers and researchers uncover largely unexplored challenges.

The driving force that explains why individuals act and behave as they do is motivation [33]. Intrinsic motivation promotes cohesive engagement and increased commitment and long-term success. [34] Extrinsic motivation does not promote learning or give rise to perseverance. On the other hand it encourages procrastination and induces "de-motivation" and kills inner desire.[35] While Intrinsic motivation contributes to psychological well-being and promotes positive self-identity, helps to reduce negativity, and induces behavioral improvement.[35] Here, in this project the focus is on getting the homeworkers motivated to complete their tasks by self-rewarding them for their accomplishments. The theories lead to creating an intrinsically motivated environment for the homeworkers to set their own goals and rewards, which essentially leads to WFH satisfaction.



Gathering Insights from Homeworkers

This chapter shares information gathered via research methodologies from homeworkers regarding challenges working parents (with families) face during COVID-19, especially in terms of work-from-home satisfaction and what it means to the homeworkers is presented. The chapter ends with a definition for WFH satisfaction. In order to achieve this the following questions are aimed to be answered:

- Q. What are the hurdles when working from home during COVID-19?
- Q. What does WFH satisfaction mean to homeworkers?
- Q. What are challenges (for homeworkers) during COVID-19 in achieving WFH satisfaction?
- Q. What kind of tools and mediums do home workers use for planning and tracking home and work activities?



Approaching The Homeworker

The target group was chosen to be individuals working-from-home due to COVID-19 with a family household inclusive of a working partner and kids. Four families living in the South Holland region working in different industrial domains ranging from IT, construction, pharma to research were invited to be part of the initial study.

In analysing the current situation of the world's largest work-from-home experiment (WFH during COVID-19), eight working parents (in four families) were interviewed to understand their current plight and various hurdles they have in their day-to-day routines, specifically related to physical and mental well-being. Other methods used to gather information in this regard included, surveys, questionnaires, follow up interviews and activity tracking exercises.

The study group consisted of individuals that were;

- + 100% working at home as a result of COVID-19
- + 50% used to Working-From-Home earlier (once a week option provided by company)
- + 100% living with a partner, six out of eight have dependent children living along with them
- + Five out of eight manage people along with their own tasks in their jobs
- + Seven out of eight have a company-provided computer and five out eight have a smartphone provided by the company
- + All of them have mortgages or rent to pay on property



Fig. 9. Target group was chosen as homeworkers with a family household



A questionnaire [Appendix 2] based on the WHO-5 well-being index was devised and used in the process of gathering information to find out how they are working during the pandemic. The home workers were asked to respond with having the past two weeks into consideration. This was carried out during mid April 2020, when they were still getting used to the scenario. The major findings included:

- + Six out of eight home-workers work long and irregular work hours, as there are no fixed time schedules or somebody to check upon them. Household chores often come up during the day and hence home workers are not able to maintain a proper schedule, hence they end up working long hours to get tasks completed.
- + Two out of eight of them have aches or pains due to continuous sitting without breaks, or by using un-ergonomic furniture.

This also urges the fact of less physical movement or exercise during the lockdown periods of COVID-19. This has led to dip in physical fitness of the employees.

- + Two out of eight don't feel calm and relaxed, as they don't know when things are likely to be back to normal. With high uncertainty of how long this living style will go on, adds more stress affecting the mental health of employees.
- + Six out of eight have days filled with no interest, where they don't know what they're actually supposed to do. There is not always a task list to complete or the tasks might be mundane. Employees like to feel they are contributing to an impact to stay interested in work. This has slowly started to deteriorate in these times.
- + Two out of eight feel isolated from their colleagues during these unprecedented times. More than being disconnected, it's a feeling of isolation to not meet up with colleagues and share a lighter moment outside of work.

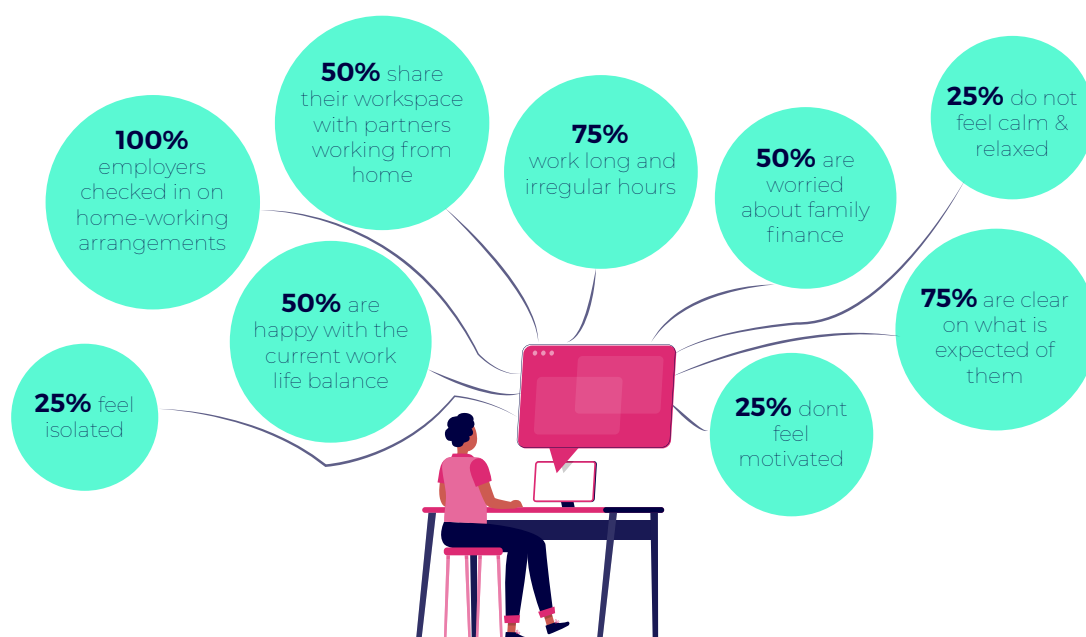


Fig. 10. Summary of results from work-from-home employee wellbeing of 8 homeworkers



A followup interview focused on improving the work-from-home situation, and what's actually hindering them from achieving it.

Family A

Family characteristics included;

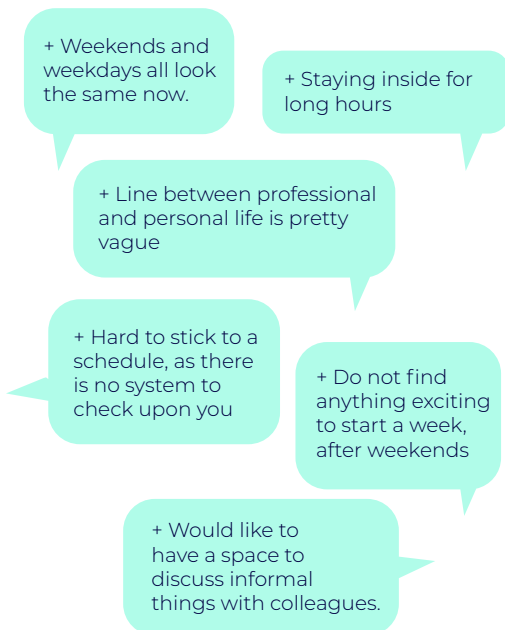
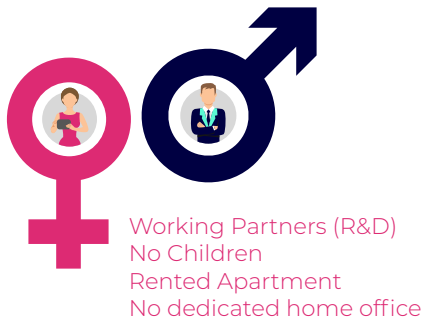


Fig. 11. Some important quotes during the conversation with Family A

This family had concerns regarding not having an informal space to share thoughts with colleagues and not having a mechanism to make sure they stick to a schedule. The lack of motivation to keep things moving every day was also touched upon

during the conversation. The key worry that was highlighted by 'Family A' was psychological well-being due to irregular work hours.

Family B

Family characteristics included;

- + Working Partners (both from the pharma industry, Research and documentation)
- + 1 Child (12yrs)
- + Own House
- + Dedicate Home Office



Fig. 12. Some important quotes during the conversation with Family B

Family B also had the concern of finding it hard to stick to schedule. Due to work-from situation one partner tends to have irregular schedules and work long nights. They highlighted the key worry as lack of motivation leading to irregular work & sleep eventually.



Family C

- Family characteristics included;
- Family characteristics included;
- + Working Partners (both from IT domain and have prior WFH experience)
- + 2 Children (9yrs and 1yr)
- + Own House
- + One partner has a home office

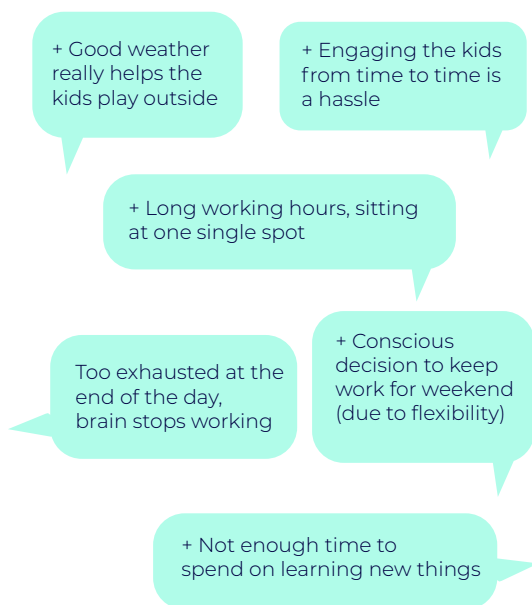


Fig. 13. Some important quotes during the conversation with Family C

Family C had the most experience with the work-from-home situation as they were both from the IT domain and were used to remote working earlier. They had the concern of being exhausted at the end of the work day and then not being able to do something meaningful. They also tend to keep work for the weekend as they know of the flexibility available. They find it hard to engage kids and keep up their work schedule together. The key worry highlighted from their end was not able to find out time to do/learn new (work-related) things.

Family D

- Family characteristics included;
- + Working Partners (Both from different domains - Geo Mapping & Construction)
- + 2 Children (11yrs and 1yr)
- + Own House
- + Home office setup as an influence of COVID-19



Fig. 14. Some important quotes during the conversation with Family D

Family D had recently set up their own home offices as the influence of COVID-19. They experience high work pressure due to stringent deadlines. One of the partners who work in the construction industry mentioned the number of steps in the work process has wants tediously increased, slowing her down. The elder kid takes care of their younger one, which kind of helps them stay focused on work. The key worry is working more hours leading to not enough time for other things.



Summarizing all the inputs from the four families, the key concerns about working-from-home from the study were;

+ **Lack of time for other things** : This gives rise to the opportunity for a tool that could be used for time management or time boxing activities to avoid distractions. This can lead us to think of more personal or family moments.

+ **Irregular working hours**: This hinted towards the lack of motivation that could help in following a schedule. The possibility of a ritual or plan helping them follow a regular routine that separates work from home arises here.

+ **Feeling disconnected from people**: This addresses the happiness of meeting people and sharing a moment with them. During COVID-19 everything went virtual.

+ **Long work hours**: This dealt with being seated at one position and not moving around for breaks or fresh air during the work day. This leads to the possibility to take active breaks during work hours.

The above results present opportunities in which design interventions could be introduced in order to impact that particular concern, that might increase personal satisfaction. We could look at solving one or a combination of either of the concerns. The interview was more focused on finding out what exactly are the opposing factors for homeworkers in improving their broader WFH situation and not particularly their personal satisfaction. As the interviews followed up on a questionnaire, homeworkers were aware of what sort of questions to expect.



Activity tracking during COVID-19

In order to find out what sort of activities from both work and family life are tracked and how it would be tracked in the current context, a small study was conducted with a group of three homeworkers.

The study conducted with homeworkers had the purpose to understand the usage of tracking tools and the interaction with such tools and data generated using such tools. The study consisted of a sample worksheet [see below image] that was developed and handed over to three homeworkers in early June 2020 (by this time employees were starting to get accustomed to the routine).

Each homeworker was issued only 2 empty sheets, so they would customize and come with their own format. The focus in this study was on three different elements; the tools they used for tracking, the data they logged and the engagement or interaction with the system/setup.

The insights from over a week's data have been divided into three categories (tools used, data logged and engagement) for better understanding.

DAILY SELF-TRACKING

TIME	ACTIVITY What are you doing?	MOOD How are you feeling?
06.00		
07.00		
08.00		
09.00		
10.00		
11.00		
12.00		
13.00		
14.00		
15.00		
16.00		
17.00		
18.00		
19.00		
20.00		
21.00		
22.00		

How are you feeling at the end of the day?

How would you rate your day? ☆☆☆☆☆

Would you do something to make it better? If so, what?

let's look back

Fig. 15. Sample Tracking Sheet



Employee 1

Tools used by employee;

- + Tracks family and work separately using different tools
- + Uses Outlook Calendar for work tracking as its public and shared with colleagues
- + Uses Google Calendar for family tracking as he want to keep it private
- + Uses virtual sticky notes for to-do lists
- + Uses physical post-its for important reminders and deadlines

Data logged by employee;

- + He reflects at the end of the day, looking back to how the day was, what did he miss?
- + Does not look back at data over a period of one week (which was the test duration)
- + Only pending items in the to-do list are carried over for the next day
- + Sometimes uses a journal to note down things, but never looks back at it

Engagement ;

- + Writes down things mainly for mental happiness and keeps using digital tools for automated reminders on cellphone and computer.
 - + When tasks are done, he feels relieved and feels like everything's under control
 - + Prepares the day's activities in the morning, which makes the mind ready
- Does an end of the day evaluation of activities and their status

The main challenge here was converting random hours of effort into focused work, which highlighted the lack of motivation.



Fig. 16. Interviewing Employee 1 at his residence



Employee 2

Tools used by employee;

- + Tracks family and work separately using different tools
 - + Uses Outlook Calendar for work tracking as its public and shared with colleagues
 - + Uses Google Calendar for family tracking as it is shared with wife
 - + Uses a smartwatch for fitness related tracking and reminders
 - + Uses virtual sticky notes for to-do lists
- Prefers digital tracking as no storage required

Data logged by employee;

- + Does an end of the day reflection, looking back how the day was and prepares to-do list for the next day
- + Does not look back at data over a period of one week (which was the test duration)

Engagement ;

- + Using digital for automated tracking & reminders as no additional effort required
- When tasks are done he has a sense of achievement
- + Prepares to-do list the day before, so he knows exactly what to do when he gets to work
 - + Planning helps to do more things in less time and gives him a sense of purpose
- Does an end of the day evaluation of activities and their status

The main challenge here was maintaining the mindset to stick to the prepared to-do list.



Fig. 17. Interviewing Employee 2 at his residence



Employee 3

Tools used by employee;

- + Tracks family and work separately using different tools
- + Uses Outlook Calendar for work tracking as it is shared with colleagues
- + Uses Google Keep for reminders & to-do lists
- + Uses journal book for family tracking, likes to keep it personal
- + Prefers physical over digital tracking as it gives more mental happiness

Data logged by employee;

- + Prefers an end of the day reflection to find out what went wrong or well
- + Does not look back at data over a period of one week (which was the test duration)
- + Liked tracking emotions as it makes her want to feel relaxed by end of the day

Engagement ;

- + Using combination of digital and physical tracking (book on table helps as reminder and writing is more satisfying)
- + When tasks are done / completed, it gives a sense of achievement
- + Planning for the next day gives her a peace of mind
- + End of day evaluation of activities kind of making sure I feel good myself

The main challenge here was having distributed work hours through the day and not for a focused time.



Fig. 18. Interviewing Employee 3 at her residence



Key Insights

Combining all three employee inputs, it was rather clear that;

+ In case of whether homeworkers would use a single tool for tracking family and work activities together, most homeworkers tend to track family and work in their own distinctive way. Work is normally tracked on the platform provided by the employer as it is public and shared with colleagues. Family is tracked on a second platform that is easily shared with a partner. It is often a personal choice of tool to track family activities as home workers want to keep it private.

+ Homeworkers make use of to-do lists that tend to serve a sense of purpose and let most of them get to focused work right away. Daily reflections showed to be rather helpful and adds to a sense of achievement or/and feeling good that time is used well and things are under control. Employees want to end their work on a happy note. Hence the end of day looking back helps them in setting the right mood and feel good about themselves.

+ Homeworkers may start looking at larger patterns of data, if the tool quantifies and generates graphs/charts for them. In the study the workers seem not to put on the extra effort to evaluate data and understand it.



Challenges for WFH Satisfaction

With all the insights from the previous studies and study about tracking, tool, data and engagement, embracing the positive spillover from work and family the main challenges homeworkers face while trying to maintain the perfect work-life balance were identified as;

+ Homeworkers are **not able to switch between home and work tasks easily**. This is due to the lack of planning these (home and work) tasks together, either personally or with a partner. Hence, they are not able to keep a firm routine. Eg: unexpected home chores like cooking/pickup kids/groceries coming up during long office hours. Probable intervention: What could be done to enable easy switching between the tasks?

+ Homeworkers end up with **very less (compared to pre-covid times) personal time** that could be used for reflection or learning as they are always busy being a faithful employee or have to immediately switch to the family role. Eg: home workers want to spend time to learn new things to better their career during the lockdown, but the continuous dual role of a parent and employee prevents them from their own time.

Probable intervention: How could the homeworkers be provided more 'me' time?

+ Home workers mostly use a **specific tool** offered by their employer to track work

related tasks as it is shared amongst colleagues. Meanwhile they use another tool to track family affairs to keep it private. This prevents them from tracking family and working together on one tool. Eg: office work is normally tracked using a shared outlook calendar while home chores are tracked on a private google calendar. Probable intervention: Can a single tool or aid be introduced to achieve this feat?

+ Since they don't use a common tool for planning or tracking family and work together, they **don't have access to any sort of integrated data** that would help the homeworkers either reflect well on the day or help them plan forward effectively. Probable intervention: Will such data actually help homeworkers make better reflections or decisions?

+ Home and work being the same place makes it pretty hard for homeworkers to **properly log off from work** and share quality time with family. Knowing that your laptop is just a room away creates that urge to get back to work. Eg: homeworkers tend to reply to emails or finish up tasks even after office hours or dinner. Probable intervention: Could there be a proper log off routine?

+ The tedious work schedules and conscious knowledge that the office is at home prevents homeworkers from taking **regular mindful breaks** which could have been used to blow off steam or reflect on their progress. Eg: in an office setting one would



have regular coffee breaks or chats with colleagues, while now they are at the comfort of their home.

Probable intervention: Could an option to enforce multiple breaks during the day be introduced?

Employees mainly described satisfaction for the home worker as 'Being in control', ie. knowing things are going as planned. This is directly related to the challenges identified. The WFH satisfaction of homeworkers is thus determined by two main factors; is he/she feeling accomplished after carrying out home & work-related tasks and also is he/she able to efficiently switch between roles of an employee and a family member (parent and partner) while being at home.

A persona was created to validate the design direction and give an identity to our design. Connecting the earlier identified challenges and the goals that needed to be met (WFH satisfaction), a persona called 'WFH dad' was created. See the below image for more details.

The unmet needs of homeworkers in this context tend to have different components: The gain points of the current work setting, pain points not letting them achieve their goals, and the effort required to overcome these pain points. These needs are required in making design choices/directions. The end goal is to have a better satisfaction tackling work and family together during COVID-19 owing to the circumstances, as comparable to the pre-COVID-19 work-life well-being.



WFH Dad

Robert | Beginner at working-from-home (WFH)

BASIC INFO
Robert has a doctorate and works as a technical researcher. He provides technical input for geo projects and loves his job. He likes spending time with his family and wishes to treat both family & work with due importance amidst COVID-19.

PERSONALITY

Introvert Extrovert

Analytical Creative

Passive Active

MOTIVATION

- + Be a better father & husband
- + Have a sense of control
- + Staying positive & emotionally healthy

"I cannot tolerate meetings all day, work does not actually get done..."

CURRENT FEELINGS

- Ambitious
- Anxious
- Stressed
- Workaholic

PAIN-POINTS OF WFH

- + Long meetings & deadlines
- + Home chores come up in work schedule
- + Mixed-up schedules with partner

GAIN-POINTS OF WFH

- + Flexible schedule
- + No morning hurry (Zero Commute)
- + Custom Environment
- + More time with loved-ones

GOALS DURING WFH

- + Get enough work done within office hours
- + Schedule and keep track of all activities
- + Do an activity with family once a week

SATISFACTION AFTER A WFH DAY

- + Tracking scheduled work
- + Checking in with loved ones
- + Getting some fresh air in the garden

AGE 38

LOCATION Delft

MEDIUM Tech Proficiency
(Laptop, Tablet, Smartphone)

HOUSEHOLD

- Working Partner
- 2 Kids (11 yrs & 1yr)
- 3-Story Home (Mortgaged)
- Dedicated space for Home Office

Fig. 19. Persona developed based on user group



From the persona we narrow down the pain points of the work-from-home employee as;

+ Long meetings & deadlines: Due to the fact of being home and since the work profile involved a lot of collaborating with different stakeholders, meetings ended up taking up more time leading to longer work hours. This combined with the fact of not sure of what is expected of them during these unprecedented times builds extra stress for these employees. This also leads to **lack of personal time** that could be used to learn new things or develop oneself. An example scenario: "During COVID 19, I want to get enough work done, within office hours, so I can spend more time with my family. I am currently not able to do this due to long meetings and deadlines."

+ Home chores come up in the work schedule: Since the home office has taken over during COVID-19, the number of intertwined tasks has increased. Although the homemaker tries to stick to an office schedule, it turns out to be pretty hard to stick to it while working from the comfort of their home. This has led to **improper tracking of home and work activities**. Eg: Cooking food and taking care of kids during office hours.

+ Mixed-up schedules with a partner: This deals with the relationship with the partner, where both partners don't disclose their schedule up front which leads to confusing times on who's in charge of the children of the household. So **switching between the office and home-related tasks** has not been

ideal. Eg: Picking up kids from daycare or doing the grocery during the work hours.

WHF satisfaction has been identified as the feeling of accomplishment (with their small deeds) and the ease to switch between work and family goals for homeworkers. The challenges that obstruct this satisfaction also has been found out to mainly deal with the mixup of family and work related tasks, not able to keep track of both of them together and the stress mounting from all these during COVID-19. Staying motivated and sticking to schedule has been tough within the lockdown period. Homeworkers tend to use different digital tools to keep track of work and private activities as an effort to keep both lives separate. Trying to play both the role of an employee and family member as needed leads to the personal satisfaction of the homemaker.



Enabling Shift Rituals



This chapter explains the idea of a shift ritual, and how a design intervention can enable, stimulate, guide, and support homeworkers to use the ritual to achieve satisfaction.



Design Goal

Using the insights, the formulated design goal is to improve the work-from-home satisfaction of homeworkers with a family during COVID 19 by helping them manage work and family tasks together.

Taking one idea at a time and thinking of the spillover within the home and office boundaries, I decided to work on an idea to help homeworkers in shifting from work to home routines.

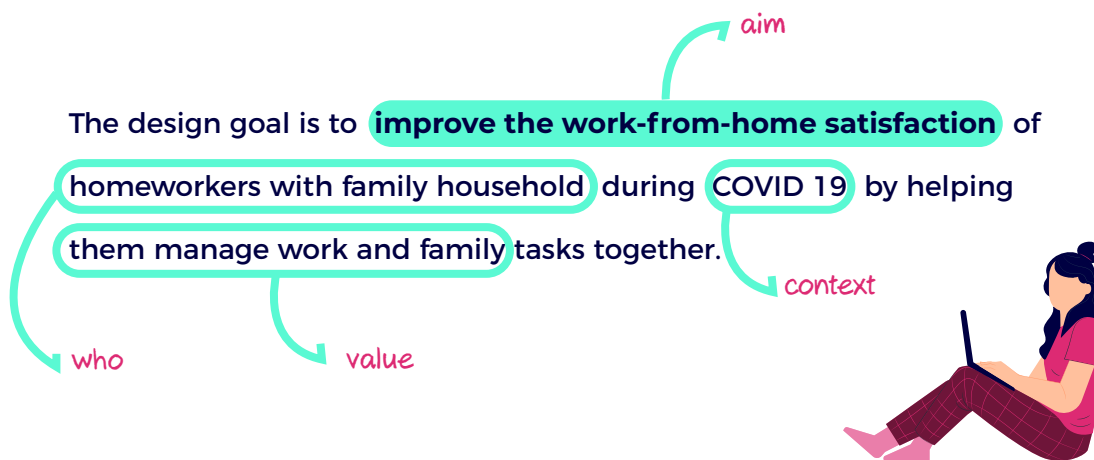


Fig. 20. A look into the design goal



The Shift Ritual

The shift ritual is my idea/concept/answer/vision for supporting home-workers in switching between work and family time.

This concept dealt with creating a ritual to disconnect (shift) from the workday and begin family time. By creating one's ritual, one that focuses on control and positivity, one essentially rewrites every day with a happy ending. Being able to control even just some of one's own time at the end of the day is both liberating and restorative. This ritual is a reminder that one is in control of one's own time, no matter what you did during the rest of the day. The timing of the ritual again is completely up to the choice of the homemaker, but would preferably be at the same time daily.

What one's ritual will be is up to the individual, but a few things that must be included;

A wrapping up moment - clean up the to-do list, reflect and probably prepare for the next day.

A rewarding moment - rewarding yourself for all the hard work. It can be some energizing exercise, a call with loved ones, or a bath, anything that makes you feel that you've been productive.

A Switching moment - At the end of the ritual, the homemaker directly engages in a household activity, like making coffee, cooking, checking in on a kid's education...etc.

If there is a regularity of this ritual, it might also help in maintaining a proper schedule of activities, despite the laziness home workers have acquired over the past few months.

The following assumptions were tested while trialing the shift ritual with three homeworkers;

+ The best timing of the ritual would be at the end of office hours, typical in the evening. This would help in a proper shift from completing or putting off work and completely focusing on family time.

+ A regularity in practicing the shift ritual every day might make them feel accomplished for their daily small office tasks.

+ Homeworkers will customise the ritual with more personal rewards that will lead to more personal time and ultimately improve satisfaction.



Engaging in the Shift Ritual

The shift ritual was evaluated in two phases, with and without the intervention to have a comparative result at the end. The goal of this evaluation was to find out;

- + What would be the best timing for the ritual?
- + How will the shift ritual turn into a regular practise?
- + How will the homeworkers customise the ritual?

The steps in the initial phase included;

- + Personal tracking of home and work-related tasks
- + The study was carried out over a week
- + Three homeworkers were involved in study
- + Daily satisfaction was measured using 5 point Likert scale (~at the end of the day)
- + Well-being was measured after a period of the study via personal interview using WHO-5 index

The average satisfaction rate from the homeworkers was found out to be 3/5 while the average well-being score was at 59%.

The steps in the final phase included;

- + Personal tracking of home and work related tasks
- + Shift ritual inserted into schedule of homeworker (they were asked to practice it at end of work day as per office hours)
- + The study was carried out over a week
- + Three homeworkers were involved in study

- + Daily satisfaction measured using 5 point Likert scale (~at the end of the day)
- + Well-being measured after a period of the study via personal interview using WHO-5 index

The average satisfaction rate from the homeworkers was found to be 4/5 while the average increase in well-being score was at 8%.

The ritual now works for a single switching moment during the day. But there seemed to be multiple such (switching) moments during the day, for the homeworkers, which needed a scaled up solution.

Relating back to the assumptions for this study, the insights could be summarised as;

Regarding the best timing for the ritual, evenings (between 5-6pm) was preferred unless there was a deadline. Homeworkers prefer to keep the ritual at the same time regularly throughout the week unless other interferences or other priorities come up.

Quote:

“Feels like finishing up things”
“Prep times makes me feel like know what to do tomorrow”

On regularity of practising the ritual, homeworkers did add the ritual to their daily activity list. All three successfully practiced the ritual even when tasks were still pending.



Quote:

“the regularity feels good, seems to be the right time to plan for the next day”
“its part of the list now”
“makes me feel good and proud about the work I’ve done”

Discussing the components of ritual with homeworkers, the planning, to-do and reflection list seemed more like a routine task and made them realize the status of tasks and where they are as per their schedule. The rewarding activity gained acceptance, as it made them feel happy and appreciate themselves.

Quote:

“I don’t generally write down the reward - I just name it my time. Looking at that in my schedule feels exciting”
“I have started to take the time to pay more attention to my kids”

Switching between family and work was made easier, as the ritual helped have a proper closure to work hours and a shift to the next activity.

Quote:

“ it’s all about sticking to the plan”
“I can clearly leave work behind and enjoy the time ahead.”

Homeworkers positively took the shift ritual, but also brought up the fact that there would be more moments of shifting back and forth between work-life and private-life rather than just one moment at the end of the day.

The idea of a rewarding ritual enhancing satisfaction levels was confirmed from our small scale study. The project aimed at creating a system that helps the homeworker in self evaluating and improving their actions, which was lacking in the current shift ritual. The study also shows there would be multiple moments for shifting from work to family or vice versa during a day. This would also needed to be addressed.



RiCu - The Ritual Cube

This chapter explains the chosen design concept. After explaining the purpose and idea behind the RiCu design, the design is elaborated addressing its functions and intended usage.



Shaping the Shift Ritual

Recollecting from our persona design the WFH satisfaction was clearly dependant on;

+ Ability to switch between family and work tasks

+ Tracking the day to day activities (family and work)

Having some personal (me) time

The shift ritual needs to scale up in order to help the home workers achieve the above determinants. For the purpose to bring in customisation or self-exploration to the shift ritual, a design concept as a 'personal goal and reward setting and tracking system for home working parents during COVID-19' was ideated.

Design Concept

A personal goal and reward setting and tracking system for home working parents to improve WFH satisfaction.

Fig. 21. Design Concept

Thinking about a physical intervention that could achieve this concept, started off with the number of goals that need to be set.

The intervention was not intended for those who want to track each and every small task and micromanage them. It's also difficult to prioritize if you have too many goals. Home-workers must not be overwhelmed when

they view the list of upcoming tasks, which may lead to the fear of failure of these tasks.

Too many goals may also hinder productivity, as humans tend to multitask causing a distraction. Therefore in this context, the

idea of doing less allows you to do more by concentrating on one goal at a time and so a range of 2-6 goals is ideal for a day-to-day purpose. The idea of a minimum of two

goals was to have one from work and one from a family domain. And with that the concept required a shape that had sides of

the equal shapes, so that it could give the work and home-related tasks the same priority. With the above info I took a subjective decision to try the cube shape to facilitate the shift ritual. To add on rituals (as

rewards) to this, I decided to go with custom icon stickers that could be added onto the cube. Thus came the idea of the Ritual

Cube.

The design phase exploring different versions [Appendix 6] of the cube led to the Ritual Cube - a physical design facilitating the shift ritual. The RiCu (Ritual Cube)

design offers an interactive goal & reward setting and tracking experience during COVID 19 for homeworkers. The design

enables easy switching between work and family tasks (via the physical design) and provides for more personal time (via the rewards). In short, RiCu is a simple instrument - fun, easy, stimulates creativity. It is

intuitive and does not involve the monotonous task of data entry for tracking.



The RiCu concept primarily focuses on addressing 3 factors;

- + Providing a single tool to track work and family together, which gives the homeworkers a sense of control over their work-life balance.
- + Providing personal(me) time by enabling homeworkers to set rituals as rewards, and thereby make them feel accomplished when practising these rituals.
- + Providing an option to easily switch/shift between work and family tasks and other rituals enabling them to feel satisfied playing both roles of a parent and employee during the day.

The ritual cube and connected application allows to set and track family and work goals on a day to day basis. Assigned stickers on the cube help homeworkers set rituals as rewards and the flipping and tapping action of the cube enables them to easily switch between activities. All these help in maintaining better WFH life, jumbling work and family together. Thus leading up to better WFH satisfaction. The below figure sketches out the different components of the system that we will go into detail.

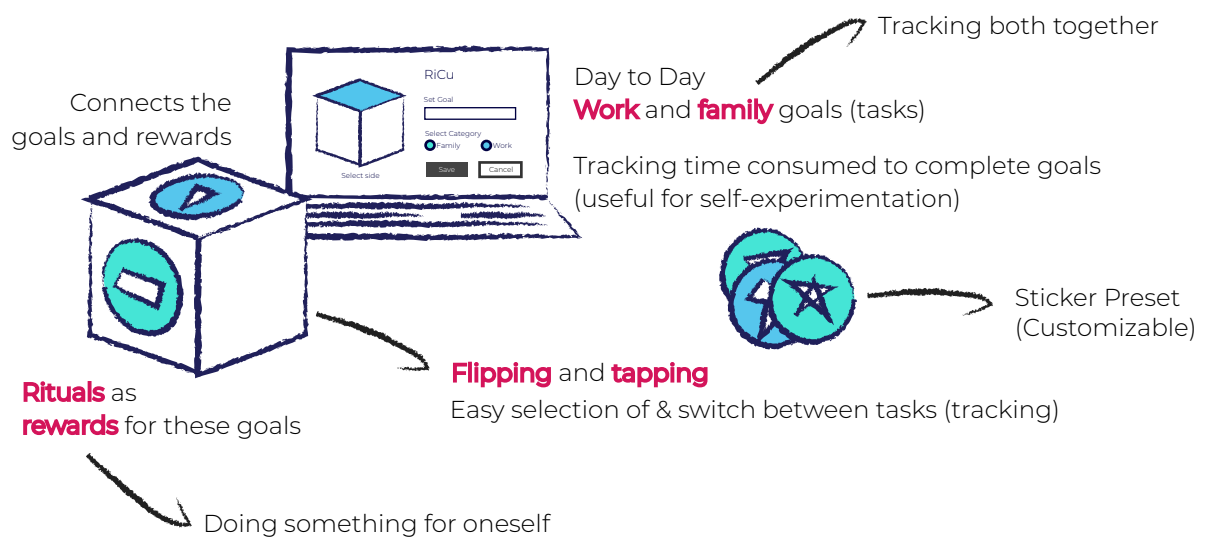


Fig. 22. The RiCu Concept



How the Cube functions?

The Ritual cube is a simple 6cm x 6cm cube with six white sides. The white sides of the cube are used for stickers of rituals (rewards) connected to the set goals. The stickers are color-coded green and blue to separate between work and family tasks. The choice of blue and green were taken as it would not distract the homemaker during an activity. Moreover green and blue are calming colors, and hence do not create stress. The homemaker has the freedom to assign either color to the activity.

The cube comes with 28 color-coded stickers and 12 blank stickers to custom make rewards. The property of the cube, by manipulating the input (tapping and rotating in this case) is used here to capture gestures and return value accordingly.

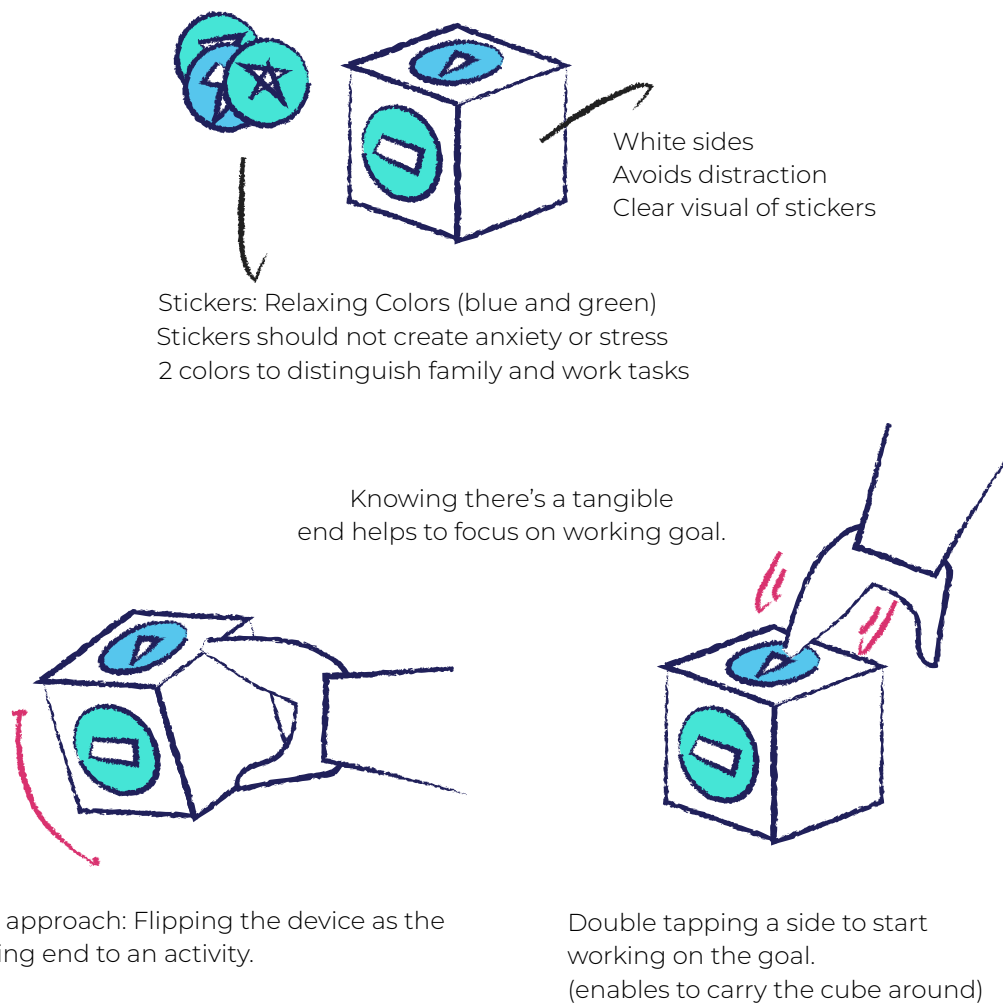
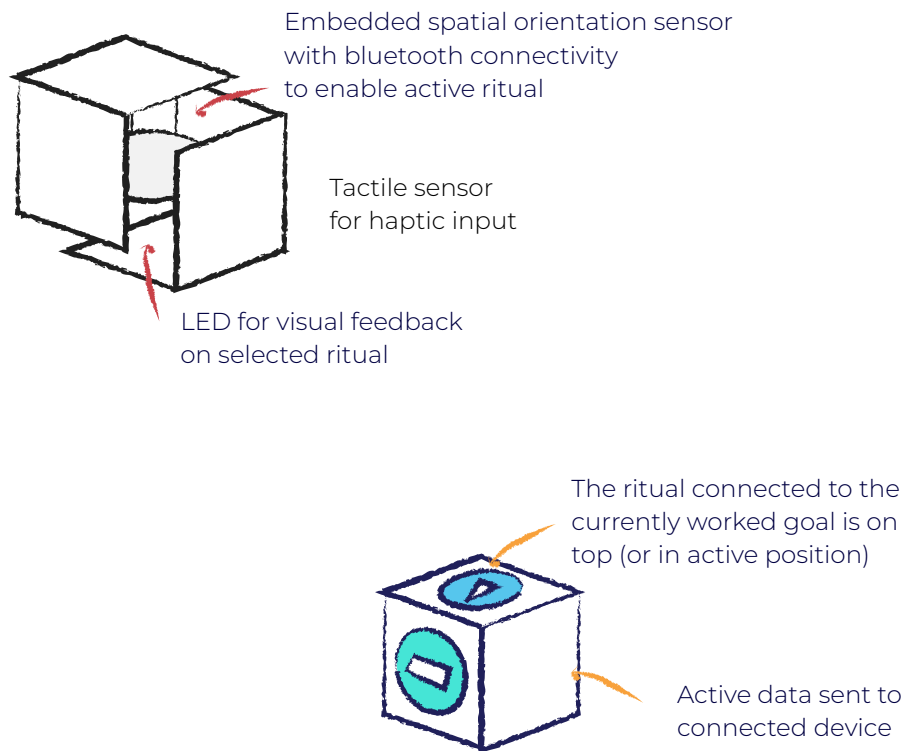


Fig. 23. Physical aspects of RiCu



The cube is a smart device connected via bluetooth to an application on the computer. The device includes a spatial orientation sensor that helps return the position of the cube, i.e. to recognize which side is being used at the moment. A haptic sensor also catches the sense of touch (tap) here. The idea is to have the currently worked goal-connected ritual on top of the cube.

Here the ritual is activated when a double-tapped and the homeworker works towards completing the connected goal. The device also tabulates the time required to complete each goal. Once the task is completed the homeworker flips the cube to mark the end of the activity and chooses to practice the ritual.



- + RiCu tabulates the time used to complete each goal (or choosing to practice a ritual).
- + This data can be viewed on the connected application and used by homeworker for improving efficiency.

Fig. 24. Technical aspects of RiCu making it a smart gadget

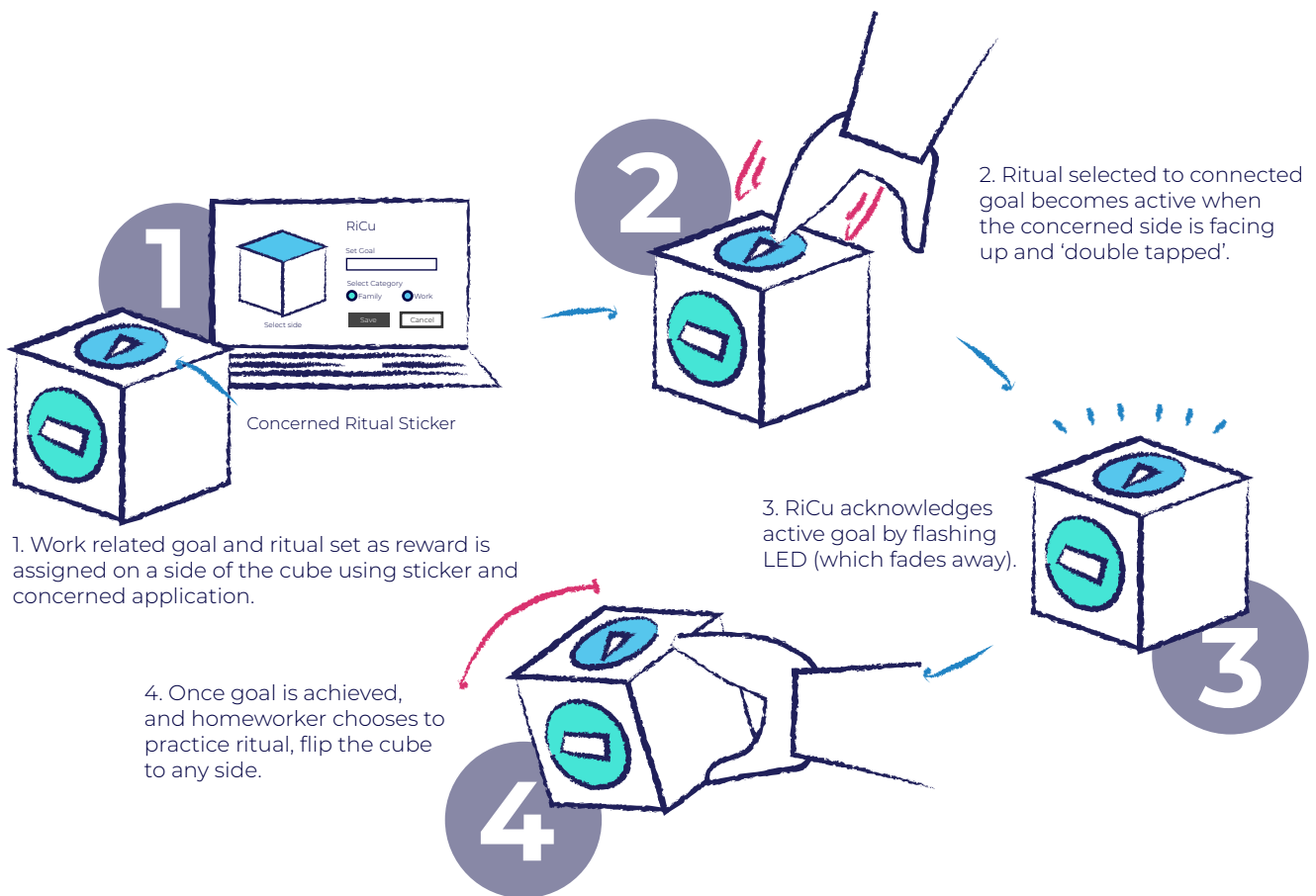


Fig. 25. Functional behaviour of RiCu

To make RiCu work, the home worker has to initially set goals and its priority on the connected application. Simultaneously the rewards (or rituals) are selected and stickers are assigned on the side of the cube to which the goal is set. Upto 6 goals can be set at time using RiCu. Next to set the cube in active state, the current goal connected to the 'to be done' ritual is set on top and the side is double tapped. Thus the ritual is in active state. RiCu acknowledges the selection, with a blinking light.

Once the goal is achieved, the homeworker may turn the cube to any other side indicating the goal is complete, and he/she is off to practice the ritual. In case the home worker chooses to jump onto work on another goal, the next ritual can also be selected and put in active state.



The total time used to complete a goal, or to choose to practice a ritual is tabulated by the connected application and shared with the homeworker. The data collected via tracking from the day is shared that may help the homeworker to reflect on the day's accomplishments. The visualised data-includes accomplished tasks, assigned goals, time taken to achieve these goals and category based goal balance for a single day.

The idea of the visualized data (refer below figure) was to answer the following reasons for the homeworkers;

Q1. How was my performance for the day ?

A1. This can be seen from the overall accomplishment of the number of goals for that day.

Q2. What were my goals and their statuses?
a2. This can be viewed from the 'goal details' panel.

Q3. Did I finish my goals in the estimated time?

A3. This can be viewed from the 'time taken to accomplish panel'. This provides a comparative data of estimated and actual time taken to complete goals and tells the homeworker how many goals she achieved in time.

Q4. Was it a work or family oriented day?

A4. This can be viewed in the 'goal balance' panel that weighs in on the number of goals from the two categories and shows the balance. This reflects whether the day was focused heavily on one category or not.

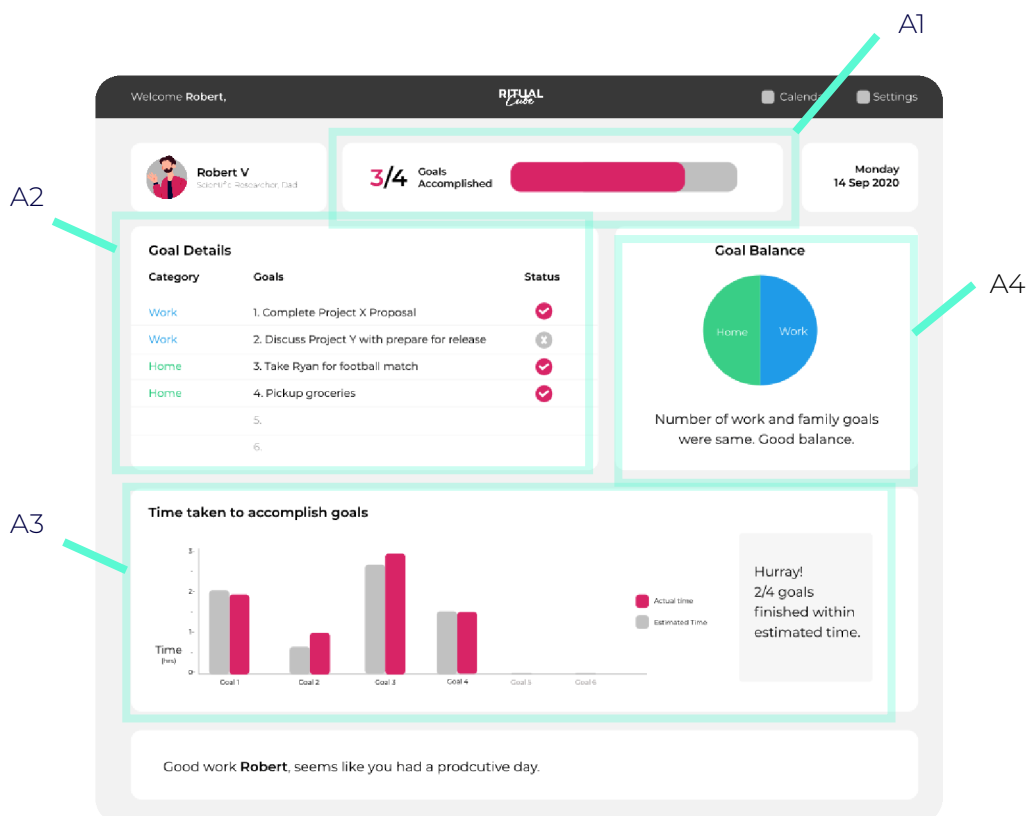


Fig. 26. Visualization of shared data



The process of using RiCu has been primarily divided into 3 phases;

- + The Goals and rewards setting
- + Taking a moment to realise goal status
- + Choosing to practice rituals as rewards

To look at the goal setting phase we need to evaluate the goal setting theory of motivation[34] which describes the criteria for efficiently setting and meeting goals to include;

- + Specify goals (quantify them)
- + Choose difficult goals yet attainable
- + Feedback to be provided on goal status
- + Deadlines improve the effectiveness of goals
- + Goals are best set when use to evaluate performance

Phase One: Goal and Reward Setting

This phase is intended to contribute towards making the homeworker aware of the tasks from both family and domain for the day. This helps him/her prioritize and set tasks and appropriate rewards. In this beginning phase home workers are required to plan and set their tasks/goals for the day. This can be done during the morning as they start their day. They identify specific quantifiable goals that need to be achieved during the said day and choose a reward (ritual) for completing that set goal. The homeworker is provided with a guidance sheet [Appendix 5] that describes what sort of goals he/she needs to set.

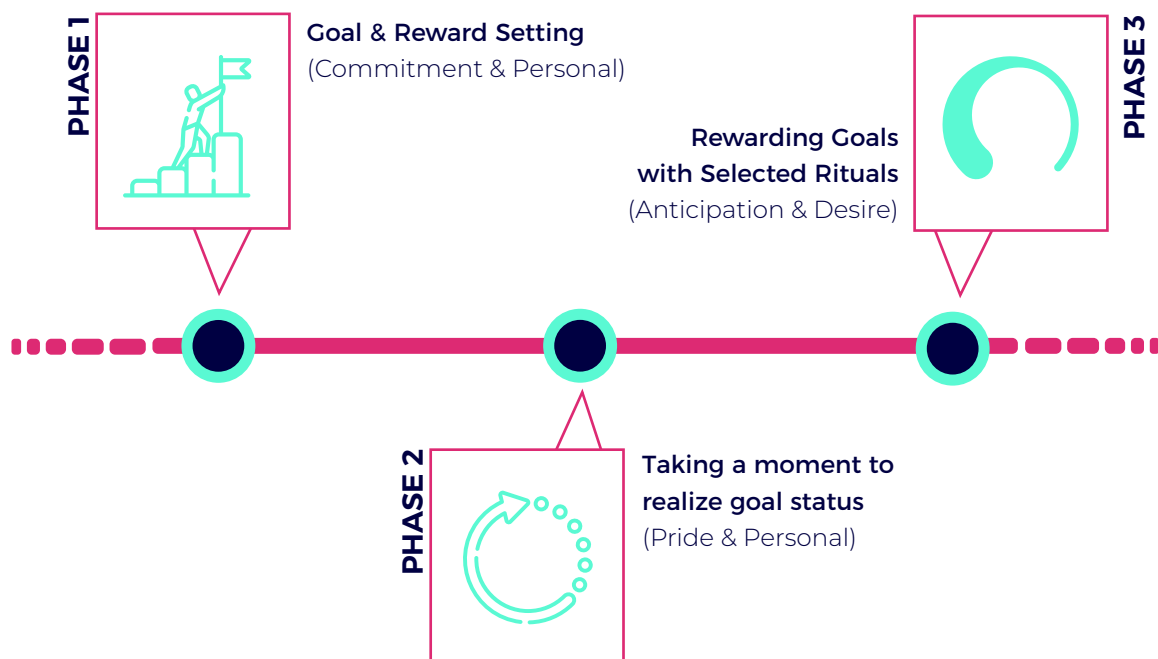


Fig. 27. Three Phases of using Ritual Cube



The guideline for setting goals includes;

+ Make Work & home related goals

try to balance the number of goals from both categories

+ Specify goals (quantify) them

eg: finish x pages of proposal, clean all 4 rooms, cook 2 meals

+ Choose attainable goals (for the day)

Don't plan ahead - just for the day

+ Deadlines improve the effectiveness of goals

Try to set a time or event as deadline

+ Set rewards for these goals

Select a ritual from the list of stickers or create your own, Add stickers to the ritual cube

The homeworkers are given the ritual cube to personalise it with their own rituals. This is done with stickers on the ritual cube and the connected application. The ritual cube comes with a set number of ritual stickers and blank stickers to customise. Homeworkers have the free will to interpret the stickers in any way. The interaction assumed here is a personal commitment made by the home worker to oneself by setting his/her own goals and rituals. The ritual cube is left on the WFH desk during the day. The homeworker may choose one goal to work upon a time, and put the connected ritual on RiCu in the active state.

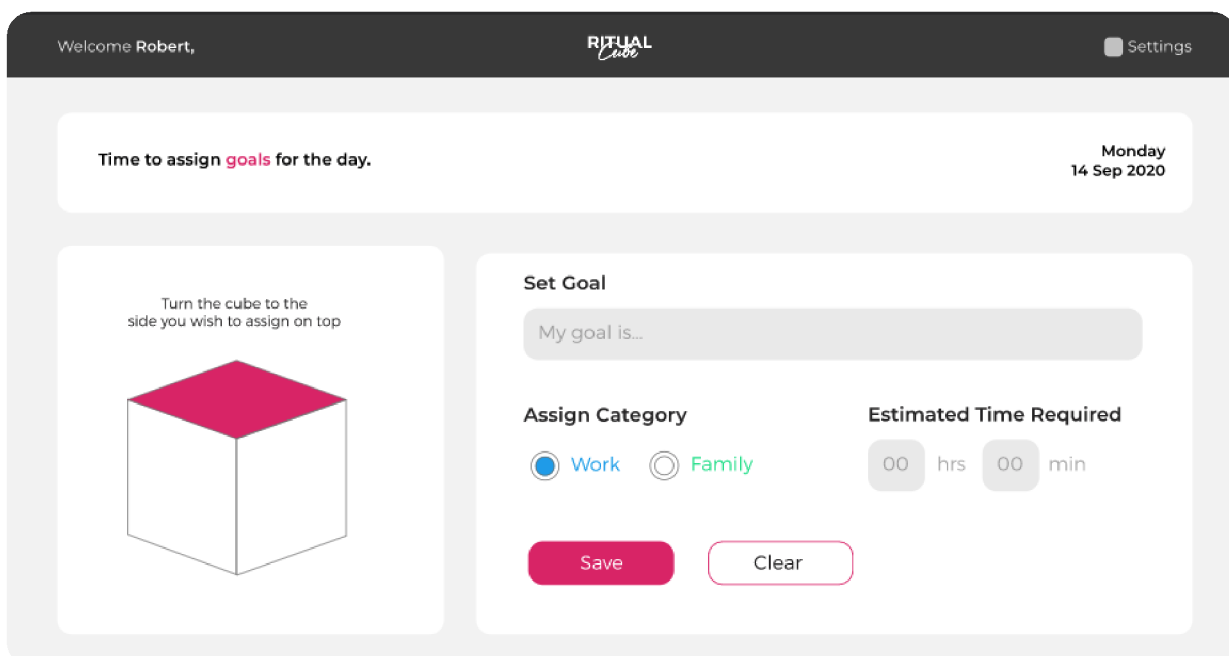


Fig. 28. Application screen used for setting goals on computer



Fig. 29. A blank RiCu(Ritual Cube) and set of sample stickers provided



Fig. 30. Paper Prototype of RiCu



Phase Two: Taking a moment to realise goal status

Phase two of the process is concentrated on providing the accomplishment feeling to the homeworker. This next phase is where RiCu serves as a visual reminder on the desk. The homeworker thinks of the ritual seeing the sticker and relates to the goal set for it. Then he/she recollects the status of the goal. If the goal is achieved he/she rotates or changes the connected ritual to inactive state and moves onto the ritual. The interaction assumed here is a personal moment of pride looking back and realising the goal connected to the ritual I has been achieved.

Phase Three : Choosing to practice ritual

This phase provides the platform for more personal time. The final phase is where the homeworker actually chooses to practise the ritual. This is very much connected to the earlier phase. As he/she realizes the goal is completed, the RiCu is rotated to put the ritual in an inactive stage. The homeworker is assumed to feel anticipation & desire of the rituals and the act of rewarding themselves, when picking up the cube.

The Tone of RiCu

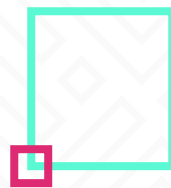
The tone of voice of interacting with RiCu is that of a caring friend. The RiCu design helps the homeworker to appreciate themselves for completing their small day to day goals. Friends are the best kind of medicine

for someone who's striving for good mental health. Here the cube helps you do things (rituals) that you enjoy. RiCu serves as a device that helps the homeworker to set goals and practice a ritual, rewarding themselves and thereby help them be happy and eventually prosper their well being. In real life friends help each other, similarly here the cube helps the homeworker achieve his/her goal with focused work and enjoy the reward for it.

RiCu contributes to WFH satisfaction by enabling an easy switch between work and family tasks, and also providing the feeling of accomplishment for the daily tasks with the rituals set as rewards. The intrinsic motivation (Self Determination Theory) to track for homeworkers was a combination of instrumental (cube leading to rewards) and behaviour change goals (daily goal setting) (from Epstein's model). The flipping of cube action has enabled the self logging for tracking goals (no additional data entry required) . The idea of the shift ritual which entails the connection between rituals (as rewards) and goals was evident, when it was facilitated using a physical device as a ritual cube. This is intended to help the homeworkers to manage their work and family tasks better and thereby lead to better satisfaction.



Everyday Use of RiCu



The chapter evaluates the idea of the RiCu concept with its primary usability features and the expected user experience of interacting with the design.

The evaluation questions included;

- Q. How does the design help in switching between the goals?
- Q. How does the design encourage them to reward themselves for meeting their goals?
- Q. How does the design promote an act of self-experimentation?
- Q. In what scenarios does the cube not work?

The evaluation was carried out with three homeworkers.



Interacting with RiCu

The concept of the ritual cube system received rather positive feedback from the homeworkers. Combining the preliminary insights from the three homeworkers, here are some of the appreciated traits of the design;

+ The action of flipping at the end of a goal feels very satisfactory.

Quote: **“flipping feels like a natural way of thinking”**

+ Tracking is fun - it has an easily understandable interface.

Quote : **“it's fairly simple, no huge spreadsheets anymore”**

+ The color coding of the ritual stickers work well.

Quote: **“Closer to a deadline I may see only work related stickers, which also tells me that the other part is taken care of by my partner.”**

+ Easily usable and instantly adoptable.

+ Not a distraction on the table.

Quote: **“The neutral colors work really well, and doesn't lose focus when the cube is in your view”**

+ The cube increases productivity as it lets you focus on the task itself.

Quote: **“I know exactly what I'm doing for the day, form the stickers”**

A deeper level of assessing the concept with the homeworkers led to more interesting insights;

Goals & Rewards: The setup motivates them to set goals and rewards. It allows for easy switching from goal to goal with the cube. Homeworkers prefer to set goals at the beginning of their work routine (mostly morning). Homeworkers are really looking forward to their rewards. They feel positive to have a sweet reward at the end (they are aware and anticipate). The color priority helps in distinguishing tasks. Goal setting is preferred the day before activity, but homeworkers tend not select rewards then. Rewards are more in the moment (personal), so they wouldn't select them the day before. Thus, combined effort (goal & reward) in the morning (start of work routine) seems to be the most effective and ideal time.

“Wish I could time box the activity too - and the device could warn me if I overshoot.”

“ It's fun to set your own rewards, I kind of bring in my cravings.”

“Switching between tasks is just a flip away...it's damn easy, no more apps to deal with”

Home workers found it seemingly uncomplicated to switch from one task to another. They enjoyed the process of setting their own rewards.

Tracking: The cube serves as the connecting link. The system connects homeworker goals and rewards. Flipping the cube changes the goals and hence connected rituals. This flipping enables auto logging and does not



Fig. 31. Assigning rituals as rewards using RiCu's prototype

require any additional data entry.

“Feels like flipping a sand timer after your move in chess”

Homeowrkers agreed tracking requires no additional effort.

Self Experimentation: The setting of goals every morning was experienced by home-workers as an exercise to experiment and explore their abilities to refine and prioritise their goals. They assume over time they can set the right goal that can be achieved in the same day.

“I know I have to set only 6 goals or less a day - keeps me on point”

“You know your days are not going to be long, because you have only a few goals.”

Improving Satisfaction

Homeworkers are able to keep up work for the day, and the cube makes them more productive. They are able to tackle time for family and work. Flipping the cube goal after goal also makes them feel accomplished while having the reward.

“Makes me focus on one task, than wandering away or trying to multitask.”

“Each flip reinforces that things are still in my control”

“Completing all the goals by the end of the day makes me calm”

Home workers interpret satisfaction in different forms, while one person might feel a sense of control, while others might feel more relaxed by completing goals on time. The concept was able to instill this feeling into the minds of the homeworker.



Unexpected Outcome from using RiCu

An unexpected outcome during the primitive test phase was adding home-related tasks as rewards for work-related tasks, so the homemaker does pay equal weightage to tasks from both domains.

Quote : **“I kind of reward my work tasks with family tasks, that way I get to balance both”**

Some other scenarios included;

- + Homeworkers started using the cube throughout the day, even in the kitchen.
 - + A child made sure one reward of his father’s goal was spending time with him.
- These were non anticipated scenarios and led to the possibilities of how else the concept could be used .

The intended interactions were also achieved to an extent. The phase one of goal setting made the homeworkers to commit to themselves to set and work for the goals and rewards. The second phase is them realising their goal status, which is more of a moment of pride (if they have completed it). The final phase where they choose to practice their ritual as a reward is a moment of instant desire when they see their reward. The ritual sticker on the cube also creates an anticipation for homeworkers to look forward to.

Thus the Ritual cube turned out to be a successful design concept to achieve the proposed design goal.



- “...its a simple, yet personal device”**
- “...it leads me through the day”**
- “...it helps to be more productive”**
- “...it doesn't take me out of what I'm doing”**

Fig. 32. Interactions achieved by RiCu



Limitations of RiCu

Although the concept worked out somewhat like I hoped, there were indeed some negatives to the design as well;

+ The cube had only 6 sides. Homeworkers suggested, on a weather busy day close to a deadline, this might not be enough.

Quote: **“On busy days, this just might not suffice”**

+ It turned out to be not apt for those who plan each and every small item or those who want to plan long term, for them we would need multiple cubes.

+ Due to sudden interruptions, homeworkers search for an option to stop activities. But there was no mechanism on the cube to pause an ongoing goal.

“I wanted to take a break, but couldn't pause the goal”

+ Being presented as a smart gadget, they were also puzzled on how the cube would be switched on or off.

+ The paper prototype seemed to be a bit flimsy, homeworkers hoped for more robust construction.

Summing up and answering our evaluation questions;

Q. How does the design help in switching between the goals?

A. **The physical artifact of the cube makes switching tasks as easy as flipping the cube.**

Q. How does the design encourage them to reward themselves for meeting their goals?

A. **The rituals set as rewards provide to give homeworkers a feeling of accomplishments for their small deeds during the day. This encourages them to work through the day and take a moment to appreciate their own effort.**

Q. How does the design promote an act of self-experimentation?

A. **The daily prioritising between work and family tasks to set up a maximum of six goals per day works as an act of self-exploration.**

Q. In what scenarios does the cube not work?

A. **It does not suit the ones who would like to plan each and every detail or plan ahead things.**



The ritual cube based on the concept of shift ritual is designed to make day-to-day goal setting, practicing personal rituals as a reward for these goals an intuitive and enjoyable task. It is for those who seek to take control of their goals and boost productivity. It does not distract you like traditional time or habit tracking applications. Homeworkers are encouraged to make their own choice, ie. plan goals, reward yourself for meeting those goals through a ritual that was pre-selected by the homeworker.

The shift ritual shows many possible opportunities using the combination of intrinsic motivation and a personal ritual to increase satisfaction. The ritual cube turned out to be the right facilitator which served as an interactive goal & reward setting and tracking experience during COVID 19 for homeworkers. After using RiCu, people translated the feeling of accomplishment to 'feeling happy about themselves', 'having things in control' or 'getting some good sleep' knowing that they've checked off their list. The rewarding moment is truly the essence of the shift ritual. Although through the advancement of WFH scenario for more than six months, parents still had the concern of switching between work and family tasks. The concept actually gave way to thoughts that 'If planned well' and responsibilities were taken up with partners, switching between tasks would be easy after all. The cube enabled this easy switching with a flip as well. Homeworkers seemed to enjoy switching back and forth,

still keeping track of their progress. The concept however also shows some challenges that it might not work for those who have a compulsion to plan each and everything.

There could be other interventions - physical (different shapes/sizes) or even digital solutions (like an app) that might lead to similar impacts. All in all, it's very promising and gives us hope that the idea of using a rewarding shift ritual works in increasing people's satisfaction.

A few recommendations for scaling up the concept includes;

Test with larger group of homeworkers

I was able to test the concept for a short period of time with three homeworkers only. It would be wise to enlarge the test group over a longer period and get a more diverse mode of input, so that we may come to more conclusive evidence of the results made.

Making it smart

Possible additions of a future oriented device may include adding more sensors to the cube and make it react to the mood of the home worker or the time of the day. Such an IOT device may have immense possibilities to deliver aggregate data, that may help the homeworker to explore more.

The Future of Shift Rituals



The mass home-working experiment in the midst of COVID-19 posed some of the most daunting conditions possible. And, coming out of the other side of it, there is likely to be strong resistance to simply re-adopting old forms of working. Lockdowns during the pandemic triggered the move to home(flexible) working in a way that previously seemed unlikely. It also shed light on how work can be done better – and effectively. Yet lockdown was also a shock to most of the employees. Few were able to start all their work from home, let alone handle it far from optimal conditions – such as child care and schooling, family priorities, not to mention health issues to be handled. The most unexpected reality during these times was how easily people adapted, often discovering more productive ways to manage their time. This clearly hints towards the fact that home working is here to stay one way or the other.

The design and evaluation of the concept RiCu have shown that it is indeed possible to combine work and family activities while working from home in ways to boost people's satisfaction and well-being. With the changing dynamics, there is no particular distinction between family and work time. This is a scenario where the shift ritual could essentially create a work-flow for non-work (family) hours too. I can see shift rituals adding 'life' to the work-life balance with the small rewards, making you appreciate the smaller things in life. It's also not just about rewards, but a reminder to take a breath for oneself during the fast-paced world, where

one is trying to be as productive as possible. The concept may be a bit like Apple's breathe app, which tells you to be calm and breathe when your stress levels are high. Yet, it has a holistic approach to well-being, creating a meaningful yet authentic working-from-home experience. The shift ritual could be scaled to a relevant framework structure using which well-being centered programs can be worked out for families or organizations.



With the trend of home-working, there is likely to evolve new measures of monitoring employee productivity. As most home employees perform computer-based activities, there is an increasing demand for employee-tracking software. Although some of these strategies are maybe a little too weird, they come at the cost of frustrating employees' sense of privacy and reducing their sense of autonomy, essential components of work-satisfaction, and success. This is one opportunity where interventions, such as the concept of shift ritual, can be used (without crossing into the employees' comfort zone) to ensure the satisfaction of employees and, as a result,



yield results for the organization.

This shows the shift ritual would be able to enable an opportunity for a mutually beneficial future scenario, where people are less stressed, more productive, and simply happier in their daily lives. There is an immense array of apps(or solutions) that deal with productivity, time-management, and well-being that could look for a combined problem-solving approach for complex environments as work and the home being the same place. The future is bright,



Personal Reflection

It's been quite the journey, from having to change graduation topics due to COVID -9 and ending up choosing a project in the context of COVID-19 itself. Going in it was indeed a very complex environment that included numerous factors that were connected with each other. Breaking down and understanding the context and challenges took a while. While exploring solutions I kind of went off track and went too long forgetting what I was really trying to solve. My supervisory team was sure to keep me on my toes and got me to rework the story towards the right directions. There were obvious moments of highs and lows, but the interesting context and concept kept me going. I learned managing expectations, and tried hard to get the feedback properly into my head so I could use it to better the project. Although it took some time in dealing with the complexity of the project, I think I was able to communicate my findings well which got me clear and proper guidance. This process helped me reach the right direction after going in a lot of unnecessary loops in the design phase. All in all, it was a learning yet accomplishing feat.

Some of the things I would like to highlight during my project term are;

Test the concept yourself

Try to explore and use the concept yourself and see how you would use and NOT use it in a continuous format, before giving it out to the test group. If it fails via your own usage you know it's not going to work, although it's designed for a specific target group.

Take a step back when confused

When you're doing too much, you might feel there's progress but this might be diverting from the key element you were trying to focus on. When I had a similar situation, with the guidance of my coaches I took a step back and reanalysed the entire progress, which helped me refocus the core of my project.



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Appendix

1. WHO - 5 Well-Being Index Questionnaire
2. COVID-19 Situation Questionnaire
3. Well-Being Self-Experimentation Questionnaire
4. Well-being Comparison Questionnaire
5. Guidance sheet - RiCu
6. V1, V2 & V3 of RiCu
7. Mobile App - ritual suggestion
8. Goal based framework
9. Outcome based framework
10. Signed Brief



1. WHO - 5 Well-Being Index Questionnaire



Psychiatric Research Unit
WHO Collaborating Centre in Mental Health

WHO (Five) Well-Being Index (1998 version)

Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks. Notice that higher numbers mean better well-being.

Example: If you have felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3 in the upper right corner.

<i>Over the last two weeks:</i>	All the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
1. I have felt cheerful and in good spirits	5	4	3	2	1	0
2. I have felt calm and relaxed	5	4	3	2	1	0
3. I have felt active and vigorous	5	4	3	2	1	0
4. I woke up feeling fresh and rested	5	4	3	2	1	0
5. My daily life has been filled with things that interest me	5	4	3	2	1	0

Scoring:

The raw score is calculated by totaling the figures of the five answers. The raw score ranges from 0 to 25, 0 representing worst possible and 25 representing best possible quality of life.

To obtain a percentage score ranging from 0 to 100, the raw score is multiplied by 4. A percentage score of 0 represents worst possible, whereas a score of 100 represents best possible quality of life.

Interpretation:

It is recommended to administer the Major Depression (ICD-10) Inventory if the raw score is below 13 or if the patient has answered 0 to 1 to any of the five items. A score below 13 indicates poor wellbeing and is an indication for testing for depression under ICD-10.

Monitoring change:

In order to monitor possible changes in wellbeing, the percentage score is used. A 10% difference indicates a significant change (ref. John Ware, 1995).



2. COVID-19 Situation Questionnaire

Section 1 of 6

WFH during a Pandemic

This is a small research initiative to find out more about your work-from-home lifestyle in the wake of the current COVID-19 (Q1-2020) global crisis.

In case of any questions or comments, feel free to drop a line at bibinparukoor@gmail.com

What gender do you identify as? *

Female

Male

Other...

Which age-group do you belong to? *

<25

25-30

31-40

41-50

>50

What is your field of work? *

Short-answer text

Section 2 of 6

Well-Being

Description (optional)

Do you share a workplace with somebody else? *

Yes

No

Has your employer checked in on the safety and health of your home-working arrangements? *

Yes

No

Section 3 of 6

Physical...

Over the past two weeks

Getting enough sleep hours? *

None of the time 0 1 2 3 4 5 All of the time

Any aches/pains/fatigues? *

None of the time 0 1 2 3 4 5 All of the time

Are you in cheerful and good spirits? *

None of the time 0 1 2 3 4 5 All of the time

Are you Calm and relaxed? *

None of the time 0 1 2 3 4 5 All of the time

Do you feel active and vigorous? *

None of the time 0 1 2 3 4 5 All of the time

Do you have days filled with no interest? *

None of the time 0 1 2 3 4 5 All of the time

How much are you worried about family finance? *

None of the time 0 1 2 3 4 5 All of the time

How much are you worried about job security? *

None of the time 0 1 2 3 4 5 All of the time

How much are you anxious about a family member health? *

None of the time 0 1 2 3 4 5 All of the time



Section 4 of 6

Emotional...

Over the past two weeks

Are you doing enough exercise? *

0 1 2 3 4 5

None of the time All of the time

Are you eating healthy during the lockdown? *

0 1 2 3 4 5

None of the time All of the time

Are you working long and irregular hours? *

0 1 2 3 4 5

None of the time All of the time

Are you able to meet your daily targets/to dos? *

0 1 2 3 4 5

None of the time All of the time

Do you feel too much work pressure? *

0 1 2 3 4 5

None of the time All of the time

Do you feel motivated? *

0 1 2 3 4 5

None of the time All of the time

Do you feel isolated? *

0 1 2 3 4 5

None of the time All of the time

Do you enjoy the autonomy? *

0 1 2 3 4 5

None of the time All of the time

Is it clear what is expected of you? *

0 1 2 3 4 5

None of the time All of the time

Do you feel valued by your employer? *

0 1 2 3 4 5

None of the time All of the time

Does your boss stay in touch? Is he/she good at it? *

0 1 2 3 4 5

None of the time All of the time

Do you get feelings of accomplishments from your job? *

0 1 2 3 4 5

None of the time All of the time

Are you happy with the current work-life balance? *

0 1 2 3 4 5

None of the time All of the time

Section 5 of 6

Improvement

Description (optional)

What would you like to improve?

Long-answer text

Main barriers you see?

Short-answer text



3. Well-Being Comparison Questionnaire



Well-being Self Experimentation

Well-being is defined as the state of feeling healthy and happy. In these worrying times of a pandemic, one is responsible for his/her own well-being. This form(/survey) is intended to collect information to help you self-experiment on certain actions leading to better well-being in your current day-to-day life.

*Required

Email address *

Your email address

What is/are the possible outcome/s you want to achieve (or what do you want to improve) through this self-experimentation? *

The following options are just to give you an idea, you are free to choose your own outcome. (You may choose multiple outcomes as well)

- More Energy
- More Focus
- More Happiness
- More Self Time
- More Family Time
- More Calmness
- More Healthy Eating
- Other: _____

What is/are the possible interventions you can implement to achieve the selected outcomes? *

An intervention is the action or process of intervening. Below are a few examples, you can formulate your own. (You may choose multiple outcomes as well)

- Practice yoga every morning
- Exercise half an hour
- Following a strict agenda
- Hugging your kids
- Drinking 5 litres of water daily
- Replacing a snack with healthy alternative
- Sleeping at the same time
- Throwing out the garbage
- Other: _____

Would you be willing to journal your experimentation? *

- Yes
- No

What would be the true purpose of these choices? *

The following options are just to give you an idea, think for your true purpose (You may choose multiple options as well)

- Creating a new habit
- Being a better parent
- Better emotional well-being
- Being a better partner
- I'm just curious
- I like being part of a test group
- Better physical well-being
- Other: _____

What do you want your super nick-name to be? *

Your answer



4. Well-being Comparison Questionnaire



Well-Being during and before COVID 19

In the wake of the COVID-19 crisis, industries had to radically shift to a work from home mode. Therefore, the discourse on workplace wellness has now shifted to how to work virtually? – and how to do so effectively? Various factors affecting telecommuting include technology, location, ergonomics, noise...etc. There are also psychological aspects to the work-from-home practice such as fear of performing optimally and missing out on networking and social events with your colleagues.

This questionnaire is intended to find out more about the emotional well-being of homeworkers before and during COVID 19 scenarios.

In COVID-19 Scenario

Please indicate for each of the five statements which are closest to how you have been feeling over the last two weeks. Notice that higher numbers mean better well-being.

Example: If you have felt cheerful and in good spirits more than half of the time during the last two weeks, select the box with the number 3.

I have felt cheerful and in good spirits

At no time 0 1 2 3 4 5 All of the time

I have felt calm and relaxed

At no time 0 1 2 3 4 5 All of the time

I have felt active and vigorous

At no time 0 1 2 3 4 5 All of the time

My daily life has been filled with things that interest me

At no time 0 1 2 3 4 5 All of the time

I woke up feeling fresh and rested

At no time 0 1 2 3 4 5 All of the time

Before COVID 19 Scenario

How would you rate the same if it was before the COVID-19 crisis?

I have felt cheerful and in good spirits (before COVID)

At no time 0 1 2 3 4 5 All of the time

I have felt calm and relaxed (before COVID)

At no time 0 1 2 3 4 5 All of the time

I have felt active and vigorous (before COVID)

At no time 0 1 2 3 4 5 All of the time

My daily life has been filled with things that interest me (before COVID)

At no time 0 1 2 3 4 5 All of the time

I woke up feeling fresh and rested (before COVID)

At no time 0 1 2 3 4 5 All of the time



5. RiCu Guidance Sheet

Set goal using the following guidelines;

+ Make Work & home related goals

Try to balance the number of goals from both categories

+ Specify goals (quantify) them

eg: finish x pages of proposal, clean all 4 rooms, cook 2 meals

+ Choose attainable goals (for the day)

Don't plan ahead - just for the day

+ Deadlines improve the effectiveness of goals

Try to set a time or event as deadline

+ Set rewards for these goals

Select a ritual from the list of stickers or create your own,

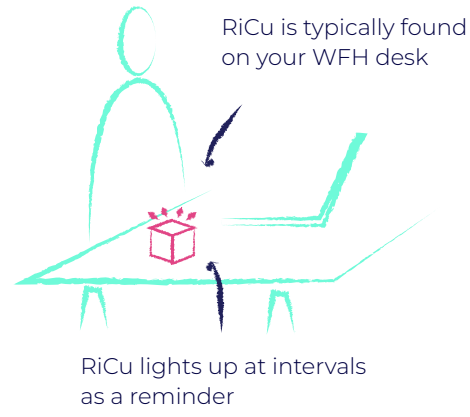
Add stickers to the ritual cube.

Start using RiCu.



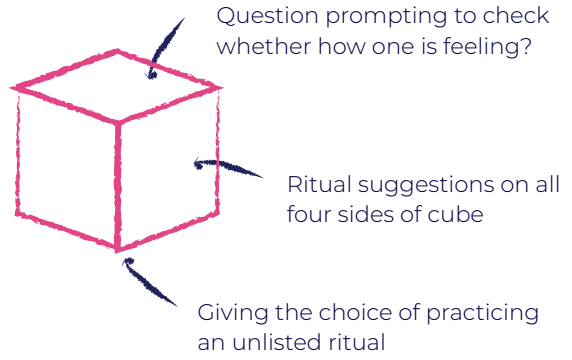
6. V1, V2 & V3 of RiCu

This concept includes a physical cube on the work table, which reminds them to think about themselves and also see a selection of basic rituals. The cube reminds the user of its presence using a light embedded init. The selected side of the cube can also be tapped to confirm the option. The cube is connected to a system that records the choice of the user. Four basic rituals were added onto the phase of the cube and an option to practice a completely other ritual was given. The connected system returns the ritual usage stats to the homemaker,



- + Intended to pick and select and option and tap on it for selection
- + Includes sensors to pick up selected choice
- + Choices over a week are aggregated and shared with user via email

Concept



Actual Scale Prototype



3D Mockup

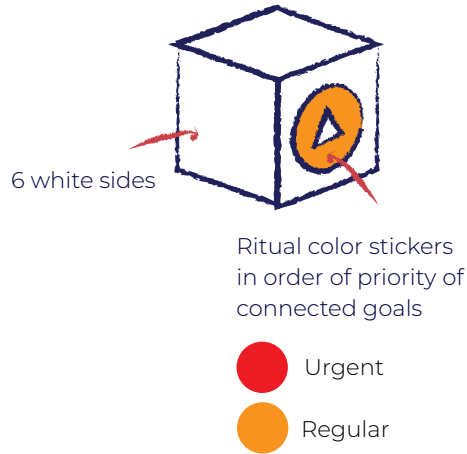


Paper prototype : Spread out

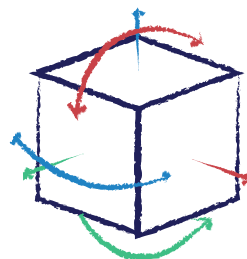
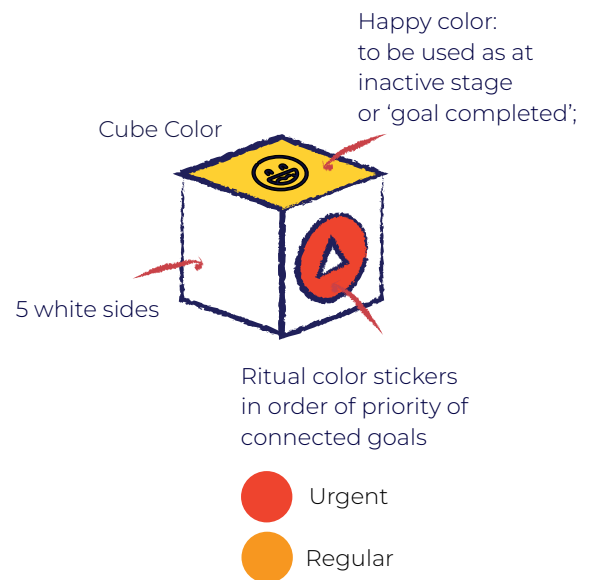
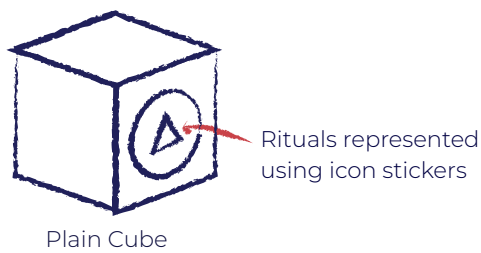


Version 2

Cube Color



Paper Prototypes of different versions



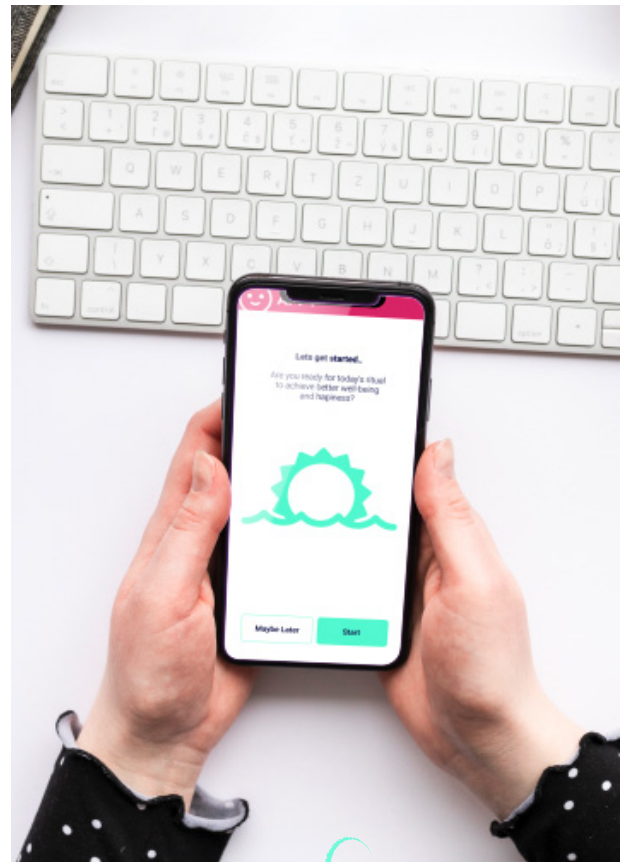
Cube Property - Manipulation as input

Version 3

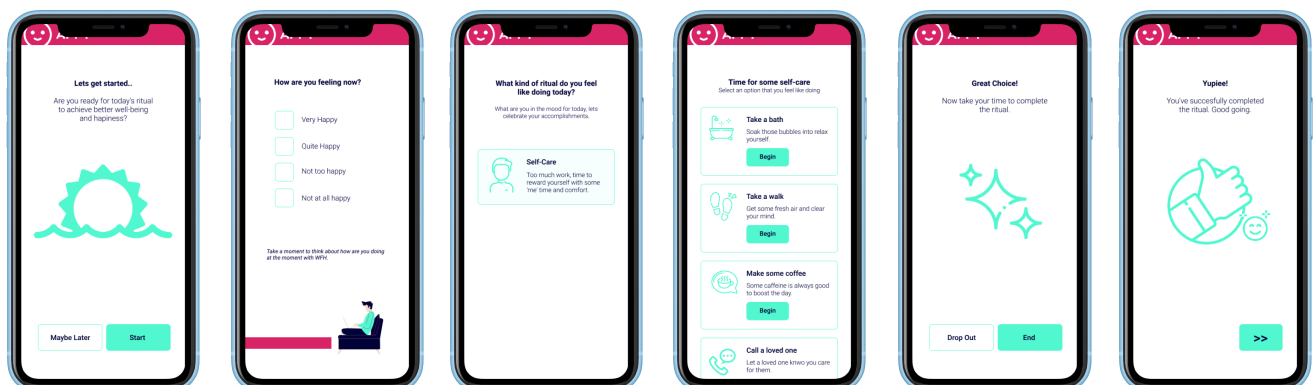
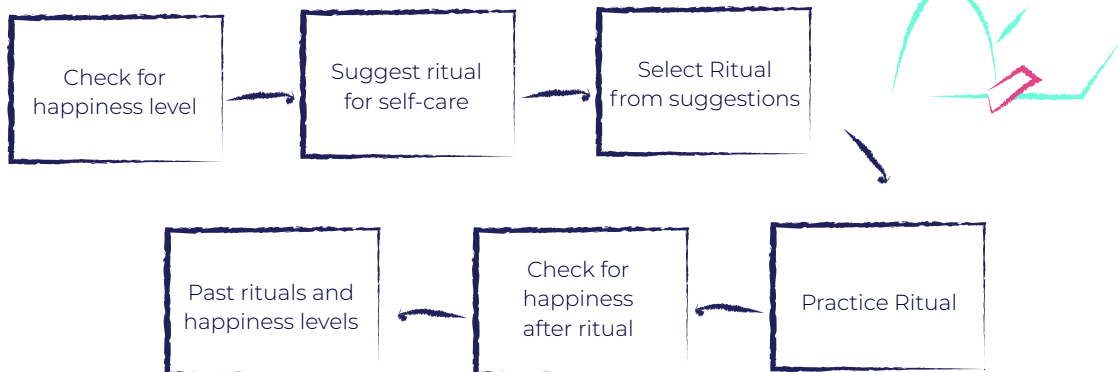


7. Mobile App - Ritual Suggestion

Transferring a similar experience from a physical device to a mobile application. This concept dealt with a digital version of ritual suggestion connected to the homeworkers agenda's or calendars used for daily planning. First the app checks with the user for happiness level and then suggests an array of rituals to choose from or gives the user the opportunity to add a new ritual. Then the application records and completes the ritual practice and then rechecks for the happiness level. The app returns the happiness-ritual actions over a week back to the user.



Outline flow dia





8. Goal Based Framework

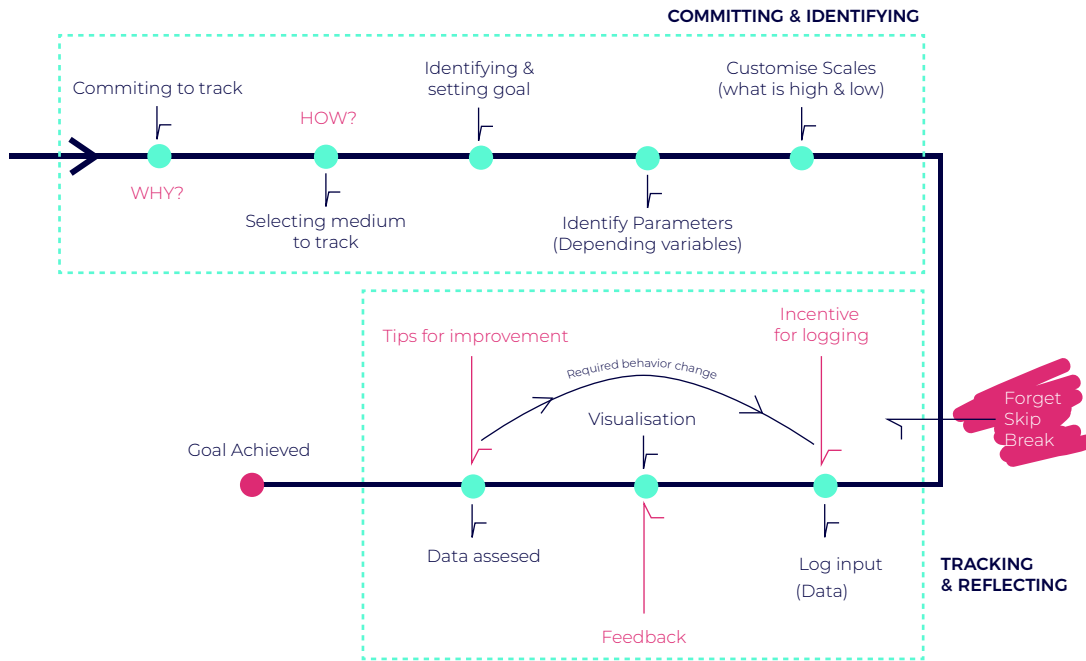
Thinking of the opportunities and knowledge gained from the literature and context I decided to come up with a framework that was essentially goal based. Once goals are set it is normally clear on how much/what effort is required to achieve the goal. Individualized goals and customization of tracking to support those goals make a huge part of self-tracking. Before going ahead to conduct an experiment, it's essential to define exactly what it is you want to improve. The objectives may be a goal or a state of being. Goals have a definitive end-state; you know when you've achieved what you set out to do, hence the goal based framework. The entire framework was assumed into two different phases.

The initial phase which included 'committing and identifying' intends to support the homeworker committing to self track and identifying the goal they wanted to work towards or track. So initially the home worker decides on why and what to track, depending on what they would like to achieve through this process and then translate it to the change in their routine. The next step would be to identify the parameters that need to be tracked and deciding how (medium, frequency etc) to track them-whether on a digital medium (online tools) or a physical medium (book/-paper). They also decide on parametric scales accordingly so that they see important custom data points that may be meaningful for the user.

The second phase focuses on the actual 'tracking and reflecting' where the home worker tracks his activity parameters and analyses his/her input over a period of time. This phase goes through evaluating whether the goal is achieved and then making changes if the goal is yet to be achieved or else completely changing the goal if the current one is achieved. It's a continuous experimentation process. The tracking and reflecting phase included changing the individuals activity accordingly to achieve the goal. I assumed this is where actually a design solution could be introduced in terms of providing an incentive for continued logging of data. In the theoretical framework we suggested the logging of data, If we could translate those into the right data in terms of graphs or charts or other visualizations to the user, that could help them possibly make changes in the techniques they adopt to achieve their goal. This could possibly make them motivated to track on a regular basis. I set out to verify this assumption by testing the framework.



Early stage idea of framework which was goal based



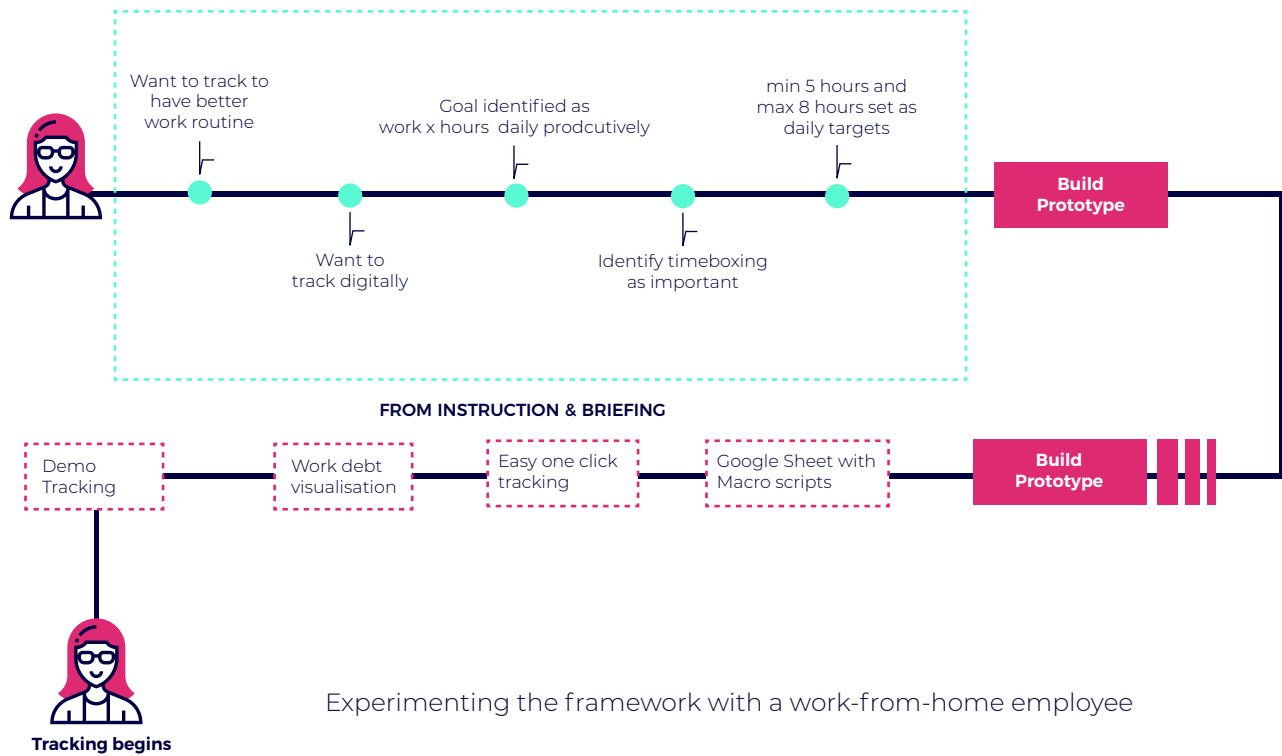
Trialing the framework

To get more deeper knowledge of the initial system and find out;

- + What medium would homeworkers use to track?
- + How frequently would they log or track data?
- + What type of visualizations would help them understand their own data?
- + How would they stay motivated to track?

I decided to go forth and test the framework with one home worker. The home worker chose to experiment to have a steady work routine/schedule, attaining a minimum number of focused work hours daily. In case she was able to get a steady number of work hours over a week leading to completing her tasks, that makes her feel more satisfied than otherwise. She wanted to track timings (like a punch in/out system) to help her timebox activities related to work, so she would end up able to complete

enough work (in this case which was set to 8 hours of work). She set her own custom minimum and maximum work hours. After a quick consultation with the homeworker, in which she preferred using a digital medium (assuming there was a platform available) I built a prototype using macro scripts in google sheets where she could simply track using clicking buttons and the time would be logged on. Essential visualizations of the data were also plotted, which would help her analyse her own data. These visualisations included the work log-in, work log-out, number of worked hours and work debt (if any) over the period of a week. These were displayed in accordance to the input of the homeworker, so she could identify if she was maintaining a routine or slackening over a week's time, and put more effort accordingly to achieve it.



Insights from the Goal Based framework

The home worker started avidly using the prototype and tracking her activities and breaks. She started adhering to a stricter schedule when the tracking started, as she felt like someone else was overseeing her schedule and felt like she needed to clock certain work hours.. This helped her reach her daily aim of 8 hours of effective work. However this just included one activity or goal and not the wholesome approach of well-being. This was because the study was set up in a manner to work with one goal at a time. This limited the potential to impact the holistic wellbeing of the homeworker. So to discover the bigger picture of WFH wellbeing we may need to include multiple activities/goals of home workers from their daily life.

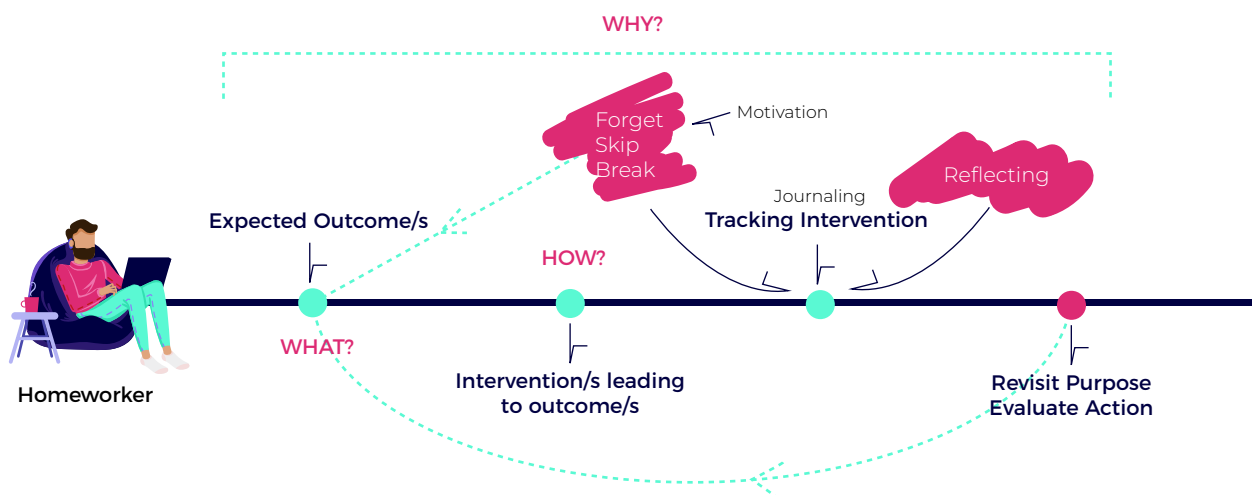
The second phase focuses on the actual 'tracking and reflecting' where the home worker tracks his activity parameters and analyses his/her input over a period of time. This phase goes through evaluating whether the goal is achieved and then making changes if the goal is yet to be achieved or else completely changing the goal if the current one is achieved. It's a continuous experimentation process. The tracking and reflecting phase included changing the individuals activity accordingly to achieve the goal. I assumed this is where actually a design solution could be introduced in terms of providing an incentive for continued logging of data. In the theoretical framework we suggested the logging of data, If we could translate those into the right data in terms of graphs or charts or other visualizations to the user, that could



9. Outcome Based Framework

WHF wellbeing during COVID-19 includes both the wellbeing as an employee and as a family person, hence the next decision was to go ahead with a different approach which would include multiple activities from both family and work that will lead to similar outcomes. My assumption here was multiple activities like doing a physical activity with family or following a strict agenda could be connected towards similar outcomes such as more happiness, energy, etc., which may lead to a higher level of satisfaction. Although happiness and life satisfaction are not synonymous, understanding factors relating to life satisfaction is crucial to understanding what makes individuals happy. [33]

The updated framework includes what, how and why elements. The 'what' included the outcomes the home worker was hoping to achieve through the experimentation. The 'how' included the interventions or activities that would lead to the expected outcomes. The next step would include the journaling/tracking the activity and then reflecting on whether they achieved the outcome, and then change actions accordingly.



Outcome Based Framework



8. Goal Based Framework

To find out how home workers would perceive the outcome based approach and to find out what sort of outcomes and interventions they had in mind, I did a small survey [Appendix 3] with ten homeworkers.

Popular outcomes that led to satisfaction as ranked by the home workers (in the order of most ranked to least ranked) included: Happiness, Focus, Healthy-Eating, Energy, Self-Time, Family-Time, Calmness

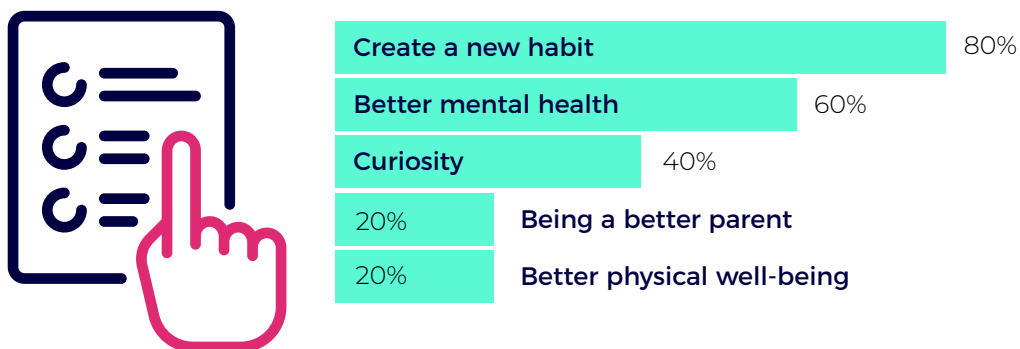
The interventions that home workers connected to these outcomes were different for different individuals. For eg: some believed 'following a strict agenda' would bring more energy while others said it would add more focus. These interventions were carried out by homeworkers in the household setting. Different workers connected the interventions to different outcomes.

The different interventions they believed would work included;

Following a strict agenda, Exercising half an hour, Practice yoga every morning, Replacing a snack with a healthy alternative, Hugging your kids, Sleeping at the same time everyday, Checking off to-do list

Following a strict agenda, exercising and replacing a snack with the healthy alternative seemed to be the popular options as homeworkers think these are realistic and achievable, unless they are too lazy to do so.

Upon enquiring on the reasons behind their choices, eight out of ten homeworkers believe it would help in creating a new habit, while six out of ten thought it would ideally benefit mental health. This choice seems to be due to the fact that it does not have to do with work. Since being consumed by work all day, the homeworker feels better mentally when engaged in a different activity. Four out of ten participants agreed it was out of sheer curiosity.



...turning the actions into a new habit/routine seems to be the most popular reason, why people want to try/change things during the lockdown...



Turning the actions into a new habit/routine seemed to be the most popular reason why people want to try/change things during the COVID-19 lockdown. Since the pandemic is there to stay for the foreseeable future, and employees cannot return to the office spaces soon, they want to build new habits that would keep them mentally and physically upright through these times.

I also wanted to find out what was the motivation that would help them keep tracking their activity and experiment accordingly. There would be two sets of motivational cause essentially while journaling or tracking and when looking back at their own data. I assumed the journaling action would enable the homeworkers to 'explore' more and give them an idea of 'self-improvement' as when the journal, they would ask themselves on how they feel about their activity/day and reflect and

self-explore on their values. While when looking back at their data it would give them 'satisfaction' or a 'sense of achievement' as when they see their tasks completed or seeing when they have made considerable progress towards a certain goal. The sense of achievement is more likely to be observed when employees feel they have contributed for a certain impact in the office, and satisfaction is more or less about feeling happy about yourself and how the day went. The sense of achievement or satisfaction is directly linked to the factor of extrinsic motivation of homeworkers.



IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !



family name _____
 initials _____ given name _____
 student number _____
 street & no. _____
 zipcode & city _____
 country _____
 phone _____
 email _____

Your master programme (only select the options that apply to you):

IDE master(s): IPD Dfl SPD

2nd non-IDE master: _____

individual programme: - - - (give date of approval)

honours programme:

specialisation / annotation:

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair _____ dept. / section: _____
 ** mentor _____ dept. / section: _____
 2nd mentor _____
 organisation: _____
 city: _____ country: _____

comments
(optional)
 |
 |
 |

! Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..

! Second mentor only applies in case the assignment is hosted by an external organisation.

! Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair _____ date ____ - ____ - ____ signature _____

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: _____ EC

YES all 1st year master courses passed

Of which, taking the conditional requirements into account, can be part of the exam programme _____ EC

NO missing 1st year master courses are:

List of electives obtained before the third semester without approval of the BoE

name _____ date ____ - ____ - ____ signature _____

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks ?
- Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content: APPROVED NOT APPROVED

Procedure: APPROVED NOT APPROVED

comments

name _____ date ____ - ____ - ____ signature _____

introduction (continued): space for images

image / figure 1: _____

image / figure 2: _____

PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date _____ - _____ - _____ end date

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, Stick to no more than five ambitions.

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FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

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IMPROVING WORK-FROM SATISFACTION DURING CO



Master Thesis Report

Bibin Parukoor Thomas

Design For Interaction | #4785193

Faculty of Industrial Design Engineering, TU Delft