

Document Version

Final published version

Licence

CC BY

Citation (APA)

Commissaris, D., Peng, Z., & Hu, J. (2026). Mie: An interactive and personalized intervention to prevent the Sunday blues. In Z. Fu, A. Misra, J. Li, & R. Xiao (Eds.), *ICHEC 2025 - Proceedings of the International Conference on Human-Engaged Computing 2025* Article 60 Association for Computing Machinery (ACM).
<https://doi.org/10.1145/3786995.3787050>

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright

In case the licence states "Dutch Copyright Act (Article 25fa)", this publication was made available Green Open Access via the TU Delft Institutional Repository pursuant to Dutch Copyright Act (Article 25fa, the Taverne amendment). This provision does not affect copyright ownership.
Unless copyright is transferred by contract or statute, it remains with the copyright holder.

Sharing and reuse

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

Mie: An interactive and personalized intervention to prevent the Sunday blues

Demeng Commissaris
Eindhoven University of Technology
Eindhoven, Netherlands
d.commissaris@student.tue.nl

Zhuochao Peng
Delft University of Technology
Delft, Netherlands
z.peng@tudelft.nl

Jun Hu*
Eindhoven University of Technology
Eindhoven, Netherlands
j.hu@tue.nl

Abstract

The Sunday blues are a negative mood shift people experience on Sunday afternoons/evenings, often due to anticipation of upcoming workweeks or regrets about the previous weekend, impacting their overall well-being and work. This study aims to examine the experience of the Sunday blues caused by unmeaningful weekends and explore how a design intervention could help prevent the phenomenon. The results show that an interactive and personalized intervention that helps users reflect, plan, and remind them in a positive manner, while enhancing autonomy, can lead to more meaningful weekends, thus giving the recovery needed to start a new workweek. These insights create a foundation for a better understanding of the Sunday blues due to unmeaningful weekends and offer guidance on how to improve the weekend experience and reduce the occurrence of the Sunday blues.

CCS Concepts

• **Human-centered computing** → **Empirical studies in interaction design**; **Human computer interaction (HCI)**.

Keywords

Sunday blues, design intervention, positive mood, well-being at work

ACM Reference Format:

Demeng Commissaris, Zhuochao Peng, and Jun Hu. 2025. Mie: An interactive and personalized intervention to prevent the Sunday blues. In *Proceedings of the 2025 International Conference on Human-Engaged Computing (ICHEC 2025), November 21–23, 2025, Singapore, Singapore*. ACM, New York, NY, USA, 9 pages. <https://doi.org/10.1145/3786995.3787050>

1 Introduction

Have you ever had those Sundays when you feel fine until the beginning of the evening, when you suddenly start to feel down? Your thoughts begin to wander towards all the things you have to do next week for work and all the things you did not get to do during the weekend, making you feel stressed and dreadful about what is to come. If so, you have experienced the Sunday blues, also known as Sunday scary, Sunday syndrome, or Sunday evening feelings. This is a phenomenon where one's mood on Sundays, particularly

in the afternoon and evening, tends to become unpleasant, which can be experienced with different characteristics such as anxious, regretful, or depressive thoughts and feelings. Surveys on LinkedIn show that at least 75% of the working class have experienced the Sunday blues, where some experience a lack of sleep due to anxiety about the upcoming workweek [5, 13, 14]. Other scientific research also indicates lower rates in well-being or increased anxiety on Sundays [1, 11, 28]. Where Gen Z (94%) and millennials (91%) seem to be affected more than Gen X (72%) and the boomers (69%) by this phenomenon [13]. The causes of this mood change are often related to work, such as worry about one's workload, negative reflection on unfinished tasks, fear of losing the job, and the weekend, such as not resting enough, not meeting expectations, and feeling a loss of the carefree period [9, 13, 14, 22]. A yearly study on the state of the workplace [8] shows that in Europe, 72% don't feel engaged at work. Where 49% struggle in their daily lives with emotions such as stress, which is experienced daily by 37% of people. Gallup also states: "Employees who dislike their jobs tend to have high levels of daily stress and worry, as well as elevated levels of all other negative emotions." Another study done in Canada shows that in 2005, compared to 1981, 67% more paid work was done on Sunday. There is also an increase in domestic work, such as chores. Moreover, a decrease was found in leisure time, socializing, and personal needs [28]. Creating a pattern where the weekends become more comparable to the weekdays, resulting in people having less time for themselves and making it harder to fulfill some of the basic human values [18], which are building blocks for one's well-being, such as:

- **Connecting with others** the need to interact and seek social closeness.
- **Exploring the world** curiosity and the drive to seek novelty and stimulation.
- **Pursuing pleasure** enhancing positive experiences and reducing pain.
- **Understanding oneself** the need to develop a clear sense of self.

When the clear distinction between work and private life becomes less visible, it becomes more difficult to properly recover from a workweek, which has a negative impact on well-being and work performance [10, 23, 27]. Thus, due to changes in the work-life balance, a decrease in leisure and personal activities, and the high level of stress and worry during workdays, without feeling engaged in one's work, it is natural that phenomena such as the Sunday blues increase amongst the working class.

*Corresponding author



1.1 Meaningful weekends

The aspect of weekend recovery is found to be essential for subjective well-being, as it provides an opportunity to recharge from the previous workweek and reduces the chance of burnout, and improves productivity [7, 10, 17, 23]. Now the question arises what proper weekend recovery entails. Leisure activities are found to be most important for proper recovery [10]. Free time, on the other hand, does not automatically result in recovery, since leisure is an experience, and free time is just something that one might have and does not create recovery on its own [6, 16]. Iso-Ahola & Baumeister [16] state that recovery is achieved through fulfilling the needs of meaning. Where meaning is defined as a connection [24]. It is something that links two separate entities together, making it a stable existence. Life is known to be an unstable, unpredictable, and ever-changing phenomenon, whereas humans strive for stability, thus making meaning something used to create that stability in a fluctuating life. The four defined needs are:

- **For purpose**, focusing on the future. Resulting in goal-oriented activities and decisions,
- **For efficiency**, the feeling of accomplishment through work or personal development.
- **For self-worth**, having a higher self-esteem and feeling good about oneself. This is done through comparison with others.
- **For value**, regarding the thing, which can be both an object (your house) and non-physical (doing volunteer work), in question as positive. It is often linked back to purpose, where people tend to seek purposes with a positive value.

These can be achieved through leisure activities related to, for example, work, love, family, friends, hobbies, etc. It is important to note that the experience of freedom, intrinsic motivation, and subjective perception of leisure will influence the impact of activities on the actual recovery. Ginoux et al. found that for the activities, it is recommended to avoid work-related ones, but incorporate social, physical, and creative ones, and depending on personal motivation, include household and low-effort activities [10].

For this design research the main focus was on how to improve the weekend experience and create proper recovery from previous workweeks in order to see if this results in less experience of the Sunday blues. Resulting in the research question: How can a (designed) product/tool help reduce the experience of the Sunday blues due to unmeaningful weekends?

2 Design process

An iterative design process was used during this research in order to better understand the context and prevent tunnel vision. By creating multiple concepts and prototypes, one can more easily visualize its use and context and communicate this with its user, giving opportunity to more context-focused research and findings [15].

2.1 Scoping the topic

To get a quick start, a pressure cooking method was applied as the first iteration. During one week, one design cycle was completed. A quick scoping and understanding of the topic, combined with an ideation session, resulted in a concept that was then evaluated

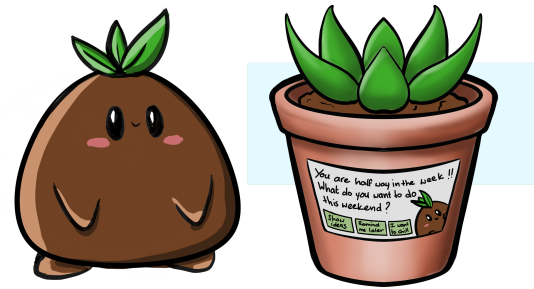


Figure 1: The Buddy Pot concept

through a peer feedback session.

The Buddy Pot (Figure 1) is an interactive plant pot, which is used to encourage its user during the week to plan for the weekend by questioning if they have plans or if they wish to make plans. Feedback from peers warned for overcrowding one's workspace when unnecessary and questioned how to achieve the desired interaction and what information would be needed.

2.2 Developing the concept with the user

A second iteration session was done, where the given feedback was incorporated, and a new ideation session was held, from which the following concept was found (see figure 2 – 4). This concept is a combination of a phone application and a sticker screen. The sticker screen can be applied to any object, such as a laptop, phone case, cup, etc., and will be used to provide simple prompts with activity ideas and planning. The user can then adjust, accept, or reject them in the mobile app.

- (1) Before usage, the user fills in a questionnaire in the app about their personality, preferences, and hobbies, which will be used to generate the activity ideas, making them fit with the user's preferences.
- (2) The second step is sticking the screen to the desired object and connecting the screen to the phone. This is done through tapping the phone on the screen. Through NFC, the screen will be linked to the phone and start displaying the prompts according to the app's input.
- (3) In the main screen of the app, the prompt shown on the screen will be visible as well, and users can decide to accept or reject the offer here.
- (4) Users can see their weekend plans by connecting their own agenda with the app and adjusting it where needed.
- (5) The app also provides extra activities in case users wish to get inspired more outside of the prompts.

2.3 Evaluation

After watching a video scenario, which illustrates a possible scene of the Sunday blues, a short conversation was held to get a better understanding of the participant's own experience and relatedness to the scenario. Then the second video scenario was played and



Figure 2: The personal reminder concept.



Figure 3: Prompt examples.

discussed together, which focused on the current concept and interface (Figure 3 & 4), giving more information on how the concept is perceived and could be adapted to their experience and wishes. Lastly, the participant was asked to let go of the concept and think of how they would prevent the Sunday blues or what they would want to have.

2.3.1 Participants. Due to limited time and resources, the participants were recruited from Eindhoven University of Technology, and most of them are PhD candidates. The sessions were conducted on campus and face-to-face, where it was required that the participant had (1) a full-time job, (2) experience with the Sunday blues, (3) had experienced the Sunday blues due to unmeaningful weekends.

2.3.2 Findings. All audio recordings were transcribed and analysed using a simplified version of the thematic analysis [21]. The main result found for the current situation was that there is no one-size-fits-all solution. Each participant has a different context and needs different solutions. For example, all participants had different ways of planning, which could overlap partially, and were mostly based on the size, type, and habits of the activity. Different causes

(e.g., work-related, chores-related) and coping mechanisms (e.g., prioritizing, planning more, keeping it spontaneous) were also given. However, even though the exact causes and wishes differed, it was clear that there were certain aspects that influenced the Sunday blues and desired changes (Figure 5 & 6):

- Providing emotional support.
- Providing help with personal development.
- Supporting making a planning.
- Help escape from a negative vision.
- Creating moments for reflecting.

These findings can be categorized according to the basic human values [18] and the needs of meaning [16] as given in Table 1.

3 Final design

3.1 Understand the concept in context through deployment in the environment.

From these results, a new iterative session was conducted. Leading to a revised concept (Figure 7). The overall concept didn't change, but the prompt types and interfaces were adjusted as follows:

- (1) Mie was added. A digital character designed to help its users throughout the week and during the weekend with numerous things.
- (2) The device should be put on one's work desk during the workweek and taken home during the weekend. Throughout the week, a clock will be displayed, and from time to time, Mie will come by to help the user out, showing different activities, suggestions, and providing encouraging statements.
- (3) On Friday, Mie provides a visual overview of the upcoming weekend.
- (4) During the weekend, Mie helps the user stay in the moment and enjoy or accept whatever may come their way.
- (5) On Sunday, Mie asks to reflect on the weekend, hoping to help the user feel more content and create more meaningful weekends.

The five desired changes found during the co-constructing story sessions were implemented as follows:

Providing emotional support

Instead of text, a fictional character was created that suggests activities to the user, shows support and encourages them during the workday, and checks up on how they are feeling on the weekend. Creating a personal bond with the character, and something that can also be seen as a coach and therapist at times. Next to the fact that participants wanted this, research also shows that positive social support influences attachment and depressive symptoms which in turn can improve mental well-being [3, 19], where it also corresponds with the basic human need of belonging [20]. Using virtual reality and social robots for improving well-being has already been done. Studies show that humans can form emotional attachment with robots and inanimate objects, potentially improving their mental health, provided that the design is adjusted to the environment and audience [2, 12, 25].

Providing help with personal development

Just as with the last concept, the users will fill in their personality,



Figure 4: Mobile app interface examples.

goals, and preferences. Where users will now be more supported in defining what they wish to focus on. There will be an option for personal development in the areas of the five activities as described by Ginoux et al. [10]: creative, low-effort, physical, household and social. Where the prompts will be adjusted based on the given answers.

Supporting making a planning

Something to help plan and visualize the plan was preferred. Therefore, an extra prompt was created that asks the user to think and inform Mie of their plans on Thursday, which is used to show the user their preliminary plans on Friday. The design of the visualized

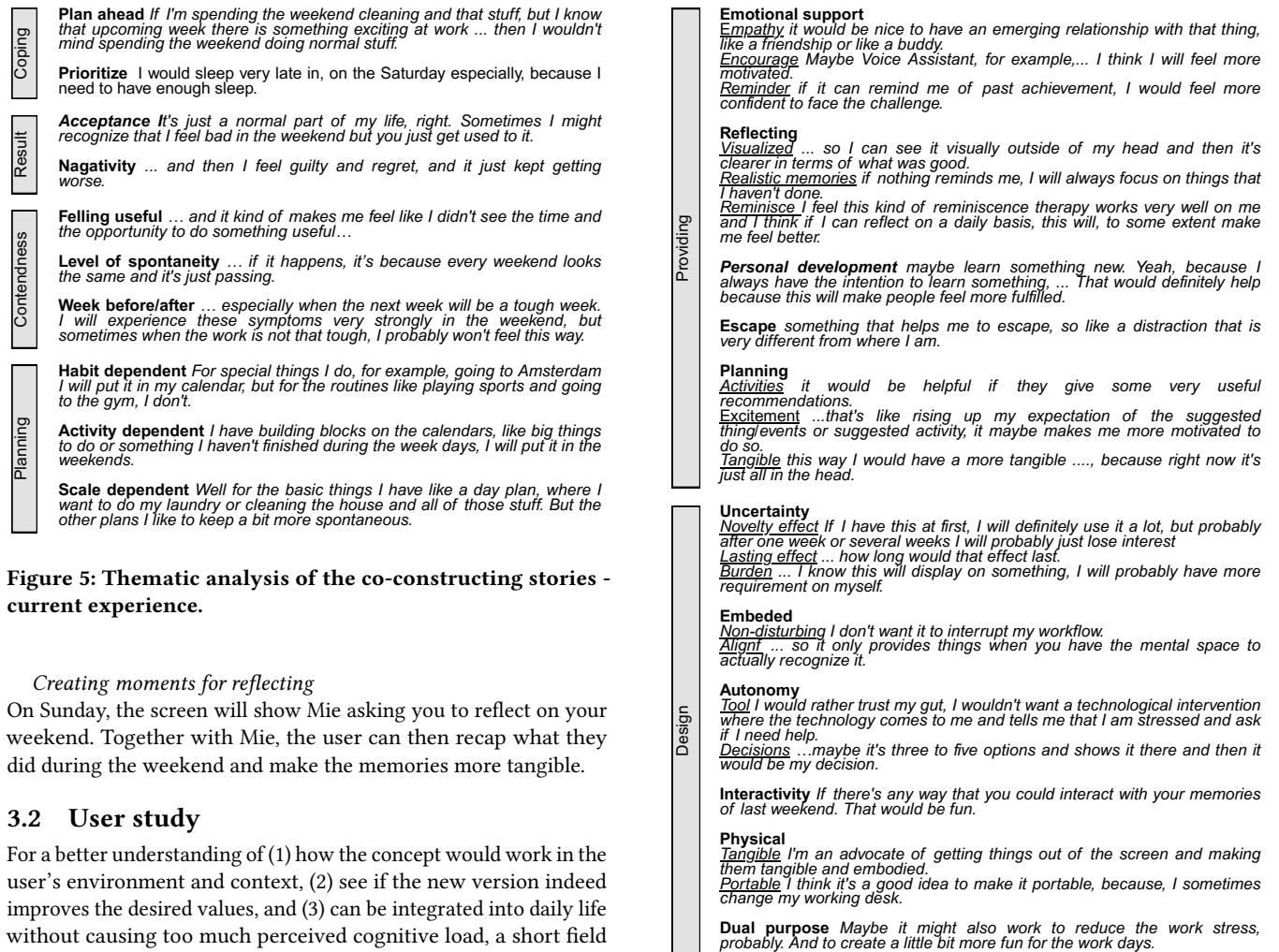
planning also changed from a work-calendar design towards a more free design with no defined timeslots, changing the association of the plans from work-related to open, free, and weekend-related.

Help escape from a negative vision

In order to help cope with negative thoughts and downward spiralling, prompts will show Mie with messages based on positive psychology, such as benefit-finding, sharing, and acceptance [24]. Mie functions as an outsider’s view that can nudge the user away from its internal thought process.

Table 1: The desired intervention characteristics and the corresponding basic human values and need for meaning from the co-constructing stories sessions.

Values		Meaning
Connecting with others, the need to interact and seek social closeness.	Providing emotional support	Self-worth
Exploring the world, curiosity seeks novelty and stimulation	Supporting making a planning	Purpose & efficiency
pursuing pleasure, enhancing positive experiences, and reducing pain	Help escape from a negative vision	Self-worth
Understanding myself, the need to develop a clear sense of self	Providing help with personal development Creating moments for reflecting	Purpose & efficiency Efficiency & self-worth



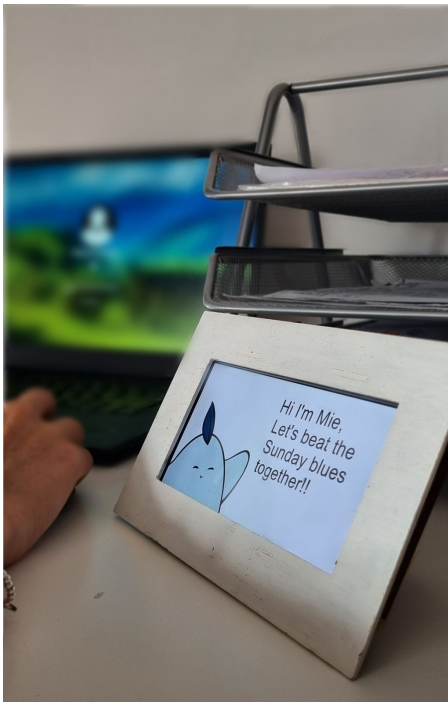


Figure 7: Final concept – Mie and you against the Sunday blues.

on Sunday, and instructions were given on what to do with it for the whole week.

3.2.1 Participants. For this study to be as realistic as possible, participants with different backgrounds and jobs were asked to participate. It was required that the participant had (1) a full-time job, (2) a job that required them to sit behind a desk often, which could be either in an office or at home, (3) experience with the Sunday blues due to unmeaningful weekends.

3.3 Results

Just as with the co-constructing story sessions, the interviews were transcribed and translated using a thematic analysis (Figure 8 & 9) and should be taken as an indication. The overall experience was positive for all six participants, with 3 of them feeling that the device had a direct influence on reducing the Sunday blues. Others stated that it could have had an influence. They weren't sure if they had a good week in general and stated that the deployment was too short to know.

Providing emotional support

The character Mie was perceived as positive, giving a more personalized and special feeling to the prompts. However, some participants mentioned that the deployment was too short to create a bond between them and Mie, indicating that longer tests should be done to understand if a bond can be formed and its influence on it.

Providing help with personal development

Most individual activities were perceived as positive or neutral,

Positive	Personal character <i>ik vond dit juist wel leuk, dat maakt het wel wat persoonlijker, een beetje specialer of zo.</i>
	Visualize planning <i>Ik vond het wel leuk, een overzicht van wat er in het weekend gepland stond, dat staat op een vrolijke manier hier.</i>
	Provide comfort <i>I think it was nice to get a reminder that was somewhat therapeutic, something that could be done in general.</i>
	Reminder <i>reminders of previous weekend so I can get also inspired from my own experience and try this again, reach out to this person again, that was nice.</i>
	Reminiscence <i>Dat brengt wel weer een glimlach op mijn gezicht ... het is weer een brug naar die herinnering van die dag met alles erop en eraan.</i>
	Suggestions <i>Element of surprise ... "Misschien kun je wel een taart bakken" en toen dacht ik dat is wel een goed idee. Social contact ... waarmee ik direct actie heb ondernomen was de vraag van "Hoe is het met Persoon X?"</i> <i>Reflecting</i> <i>Ja, het heeft me wel op zijn minst even gezet van: het kan geen kwaad om eraan te denken.</i>
	Positivity <i>Het was wel al heel positief aan het einde van de dag.</i>
	Design <i>Size</i> <i>Ja, hij was ook een goede maat.</i> <i>Personal workplace</i> <i>Wat ik er wel leuk aan vond is dat het je werkplek personaliseert voor die dag.</i>
	Sunday blues <i>Ik denk wel dat het heeft geholpenom mijn zaterdag te plannen.</i>
	Formulation <i>It feels like probably one question would be better. because I think it's just too much text.</i>
Negative	Technical issues <i>Screen</i> <i>Hij had wel de neiging, ik had er jou daar verder niks over verteld, om de hele tijd uit gegaan.</i> <i>Device</i> <i>It was a bit annoying that the device had to be charged all the time</i>
	Screen timing <i>Midway encourage</i> <i>... maar mijn vriend zei wel dat het niet precies halverwege de week was.</i> <i>Reflecting</i> <i>Als dat zondag ergens tussen 10 en 11 zou zijn... Of een maandag ochtend...</i>
	Interactivity <i>Ik verwachtte dat er iets meer interactie was.</i>
	Concept understanding <i>...ik dacht dat het op vrijdag voorbij was en zodoende heb ik hem wel nog in het zicht thuis neergezet</i>
	Suggestions <i>Preference</i> <i>...ook bij deze specifieke film dat als ik hem gezien had, dat ik een naar gevoel had gehad.</i> <i>Pressure</i> <i>...feel like I should have done this, but I didn't manage with the time or I already have plans.</i> <i>Formulation</i> <i>...it could have helped me, for example to ask me, when would you like to do the origami?</i> <i>Personal</i> <i>Die heb ik langs zien komen, dacht ik van nee, want daar heb ik iemand voor ingehuurd.</i> <i>Reflecting</i> <i>No, I don't think I need to reflect on the weekend, because I feel like it's in the past.</i>

Figure 8: Thematic analysis of the deployment - experience of the design.

where the experience depended greatly on the individual and what they needed, preferred, and wanted. For example, the movie suggestion should align closely with the user's preference; if it doesn't, it can cause disgust or annoyance. The same goes for house chores; some participants do not plan the chores in advance or have a standard time for this, thus making it irrelevant to receive it as a prompt. This shows the need for autonomy in what kind of prompts appear and taking action based on them. One prompt that multiple participants praised was the social connecting reminder, indicating social connectedness [4] as a crucial desire.

Supporting making a planning

Having a visual for the planning was positively associated with all participants.

Table 2: The desired intervention characteristics and the corresponding basic human values and need for meaning from the deployment.

Values		Meaning
Connecting with others, the need to interact and seek social closeness.	Providing social suggestions	Purpose
Connecting with others, the need to interact and seek social closeness. Being safe and well, looking after physical and mental well-being Receiving recognition, external validation to boost self-esteem	Providing emotional support	Self-worth
Exploring the world, curiosity seeks novelty and stimulation Achieving goals, the need to set challenges, and demonstrating abilities	Supporting making a planning	Purpose & efficiency
Exploring the world, curiosity seeks novelty and stimulation	A visualization of one’s planning	Purpose & efficiency
Growing myself, the need to learn new things, and develop skills	Receiving surprising suggestions for things to do	Purpose
Pursuing pleasure, enhancing positive experiences, and reducing pain	Receive positivity and uplifting reminders	Self-worth
Understanding myself, the need to develop a clear sense of self Achieving goals, the need to set challenges, and demonstrating abilities	Providing suggestions for personal development	Purpose
Understanding myself, the need to develop a clear sense of self	Have moments for reflecting when needed	Self-worth
Having autonomy, the need for independence and agency over behaviour	Autonomy in taking action	Self-worth
Being safe and well, looking after physical and mental well-being	Help escape from a negative vision	Self-worth

Help escape from a negative vision

Receiving comfort and reminders at certain moments and reminiscence on the past were appreciated. However, some other prompts put pressure on the user, for example, when they feel like they are not doing well or are busy, and a prompt shows what they still have to do or aren’t doing right now, thus achieving a negative effect, again, indicating the importance of personalized and well-timed prompts.

Creating moments for reflecting

As for the need to reflect, some participants indicated that it would be nice to have a prompt for it, where it might also help to do the reflection through interactive questioning. However, others stated that they do not really need it or only want it when they feel the need to do so, making the feeling of autonomy and interactivity again something that should be considered.

Most participants started off a bit puzzled with their understanding of the overall concept, since they didn’t know what to expect, but throughout the week, they understood better. Participant B, for example, at the beginning expected more interactivity and would have liked this as well. Other participants also stated that they would like a more interactive device, which can be adjusted to personal preferences, life circumstances, and planning.

The prompts and Mie could also be shown more often and longer, with multiple participants suggesting to get rid of the clock altogether and have Mie constantly on the screen. It should also provide more in-the-moment help on weekends and provide suggestions

on weekend days themselves (E.g., prompt 16 on Sunday morning). Lastly, the physical design should be reconsidered with the aspects of transportability, ease of use, feasibility, and workplace adaptability.

The results are in agreement with the findings of the co-constructing story sessions. Where additional potential intervening factors were found, which can be aligned with the meaning types of [16] and a multiple of Kerlin’s [18] basic human values (table 2). Affecting double the amount of values as initially thought (see introduction). Making the list of basic human values and meaning a possible basis for designing and researching how to create meaningful weekends, as long as personalization and autonomy are supported as much as possible. However, a longer deployment should be conducted to understand the actual impact of this intervention.

4 Discussion

4.1 Limitations

First of all, it should be noted that this research was done alone. Making it prone to personal bias and errors. Where effort was made to prevent tunnel vision through including as many users and their expertise within the design process. However, this is still interpreted only by one person, which could result in distorted findings. Secondly, due to the time constraints of this study, the field deployment was only conducted for 1 week per participant. This only gives a grasp at how the intervention influences users and their experience of the Sunday blues, since the Sunday blues is a phenomenon that doesn’t always happen every weekend. The

Concept	<p>Interactivity <i>Planning ... you could make a cake, but also asking what kind of cake would you like to bake?</i> <i>Time ... als een soort optie kunt hebben dat je laat weten of je weg bent of dat je thuis bent.</i> <i>Emotionally connecting</i> zoals Pokémon. Je kan over het oortjegeaan en dan beweegt het even. <i>Auditive</i> want ik merk nu ook steeds vakerdat het veel makkelijker is even wat inspreken dan te typen.</p> <p>Field study duration <i>Would be nice to try it longer.</i></p>
	<p>Design <i>Transporting</i>Probably the case could be economic. Foldableor something becauseit takes up space. <i>Feasibility</i> Je maakt het wel spannend door te zeggen dat het even een scherm is dat je opplakt. <i>Ease of use</i> Je zou denk ik idealiter misschien twee willenhebben, eentje op het werk en eentjethuis. <i>Workplace adaptable ... in een formelere setting zou zijn en dan je weekend foto's erop , is dat gek.</i></p> <p>In the moment help ... Voor korte termijn inspiratie...</p>
	<p>Personalized <i>Photo's ... beste momenten staanbij mij op de fotomuuren dat zijn altijd foto'smet andere mensen.</i> <i>Mie's character</i> per persoonwisselt, dan moet je kijkenwat voor persoonlijkheid wordt gewenst door wie?</p> <p>Autonomy ik zet hem vast aan mijn agenda. Of dat hij wel automatisch kan ophalen, maar dat je kan aangeven wat wel en niet erop mag blijven.</p>
	<p>Reflecting <i>Maar ik denk dat ik een reflectiemoment wel iets positiefs vind.</i></p> <p>Timing <i>Probably more screens. I feel like the clock for me is irrelevant. It could be the Mie all the time.</i></p>
	<p>Uplifting ...the Wednesdaymorning that it was like uplifting. Maybe a bit more of those in a way.</p> <p>Reminding <i>Birthdays Oh, iemand die me helpt met verjaardagen! Goals but also like a reminderthat you will eventually do it.</i></p>
	<p>Social suggestions <i>De Sunday blues komt bij mij niet door gebrek aan plannen,maar door gebrek aan contact.Dus herinneringen aan connecties...</i></p> <p>Plannign overview <i>Dus niet alleen op de zaterdag laten zien wat je gaat doen, maar ook op de vrijdag...</i></p>
Screen	

Figure 9: Thematic analysis of the deployment - envisioned design.

main target of the device is long-term adjustment and intervention, meaning that for proper results and validation, a deployment should be conducted for multiple weeks, preferably even months. With that comes the fact that for experiments during the iterations, the number of participants was limited. Both are due to the given time constraints for finding suitable participants and conducting the corresponding tests. The results were also quite diverse and personal per participant, with overlapping answers but not the exact same ones, indicating that saturation might not have been met yet, and not all influences and factors have been discovered. Thus implying the need for more participants and testing before any definitive conclusions can be drawn.

Thirdly, all participants who took part in either the field deployment or co-constructing story sessions are living in the Netherlands, either close to Eindhoven or Enschede. Making the demographics for this study very condensed could be biased based on local and national culture.

For the field deployment, all participants were also acquaintances, which could have influenced the results, even when it was emphasized that this should not be taken into account by the participants. There were also limitation due to technical knowledge, causing difficulties during the deployment. This can have impacted the experience and understanding of the probe for the participants. Due to limited programming knowledge and skills, the probe made use

of a website displaying certain designed GIFs at a given moment in time, instead of an interactive application, reducing the understanding of the concept.

Next to that, it was clear to see that the device entailed a phone inside a casing, since it wasn't possible to hide the browser or the home button. This could have influenced the experience and interaction with the probe as well. Another problem was that the phone and website malfunctioned on multiple occasions, resulted in less credibility. One of the phones had trouble charging, requiring extra effort from the participant to keep the phone working. The same phone also had trouble with keeping the screen constantly on, even though an app was installed prior to the deployment to make sure it would.

Lastly, the two phones that were used weren't the same model, having a slightly different interface design and size.

4.2 The work vs. weekend influence

Since the Sunday blues can be influenced by any event in life, such as work or weekend satisfaction, and can result in different symptoms for each experience, it is questionable to state that one can solve or understand the Sunday blues due to weekend issues alone, or even know whether an intervention for weekend meaningfulness results in lower to no experience of the Sunday blues. Therefore, it isn't possible to state that the Sunday blues are completely fixed after creating meaningful weekends, since work-related causes could still have an effect on the user's well-being.

4.3 Creating meaningful weekends

For this study, meaningful weekends were taken as the focus point. However, it is difficult to give general advice for creating meaningful weekends. Meaningful depends on subjective perception, which is influenced by the person's memories, prior experiences, expectations, context, and in-the-moment cues. Giving the possibility that the same weekend could be experienced as meaningful one time and not meaningful another. This was not researched during this study, making it difficult to tell what influenced the participants' experience and decisions to name the weekend meaningful or not, and whether the device was helpful or not.

5 Conclusion

This study researched how a designed product/tool can reduce the experience of the Sunday blues due to unmeaningful weekends. An intervention was created that uses a digital character to give activity options, encourage its users, and prepare them for the weekend, both throughout the week and during the weekend itself.

The findings indicate that it is difficult to create a one-fits-all solution due to the complexity of the phenomenon and personal differences in the experience. Showing the need for highly personalized interventions, which can adapt and grow with the user and their context.

Even though there is a need for personalized interventions, the results point to a few overarching design factors that influence the experience of meaningful weekends and possibly reduction of the Sunday blues. Suggesting that when designing a product or tool to create meaningful weekends, one should make it interactive, personalized, enhance autonomy, provide activity suggestions, offer

in the moment help, help escape from a negative mood, help make and visualize the weekend plan, give reminders in a positive manner, and provide moments for reflection when needed. These factors can also be categorized according to the list of basic human values and need for meaning, making it possible to use these criteria to predict whether a creation can prevent unmeaningful weekends.

However, this study should be seen as a first step towards insight into the problem of the Sunday blues and a potential design principle. More research is needed to obtain a holistic view of the experience of the Sunday blues and how to design for it.

References

- [1] Alpaslan Akay and Peter Martinsson. 2009. Sundays are Blue: Aren't They? The Day-of-The-Week Effect on Subjective Well-Being and Socio-Economic Status. *SSRN Electronic Journal* (2009). doi:10.2139/ssrn.1506315
- [2] Deniz Altun. 2021. Virtual Reality Technology in Healthcare. Unpublished manuscript.
- [3] Robert A. Baron and Nyla R. Branscombe. 2016. *Social Psychology* (14th ed.). Pearson.
- [4] Kadian Davis, Evans Owusu, Jun Hu, Lucio Marcenaro, Carlo Regazzoni, and Loe Feijs. 2016. Promoting Social Connectedness through Human Activity-Based Ambient Displays. In *Proceedings of the International Symposium on Interactive Technology and Ageing Populations* (Kochi, Japan) (ITAP '16). Association for Computing Machinery, New York, NY, USA, 64–76. doi:10.1145/2996267.2996274
- [5] Dexian. 2024. *Do You Get the Sunday Scaries*. https://www.linkedin.com/posts/dexiansolutions_worldmentalhealthday-activity-7250224834809380864-sziL/ Online post.
- [6] Teresa Freire. 2018. Leisure and Positive Psychology: Contributions to Optimal Human Functioning. *The Journal of Positive Psychology* 13, 1 (2018), 4–7. doi:10.1080/17439760.2017.1374445
- [7] Charlotte Fritz and Sabine Sonnentag. 2005. Recovery, Health, and Job Performance: Effects of Weekend Experiences. *Journal of Occupational Health Psychology* 10, 3 (2005), 187–199. doi:10.1037/1076-8998.10.3.187
- [8] Gallup Inc. 2024. State of the Global Workplace: 2024 Report.
- [9] Get Ahead By LinkedIn News. 2024. *What Is the Main Cause of People's Work-Related Anxiety at Night?* <https://www.linkedin.com/feed/update/urn:li:ugcPost:7033871955363532800/> Online post.
- [10] Charlene Ginoux, Sandrine Isoard-Gautheur, and Philippe Sarrazin. 2021. "What Did You Do This Weekend?" Relationships Between Weekend Activities, Recovery Experiences, and Changes in Work-Related Well-Being. *Applied Psychology: Health and Well-Being* 13, 4 (2021), 798–816. doi:10.1111/aphw.12272
- [11] Timo Gnams. 2021. The Day of the Week Effect on Subjective Well-Being in the European Social Survey: An Individual-Participant Meta-Analysis. *Zeitschrift für Psychologie* 229, 1 (2021), 38–47. doi:10.1027/2151-2604/a000436
- [12] Imene Guemghar, Patricia Pires De Oliveira Padilha, Abdel Abdel-Baki, Didier Jutras-Aswad, Josiane Paquette, and Marie-Pascale Pomey. 2022. Social Robot Interventions in Mental Health Care and Their Outcomes, Barriers, and Facilitators: Scoping Review. *JMIR Mental Health* 9, 4 (2022), e36094. doi:10.2196/36094
- [13] Beth Heitmann. 2018. *Your Guide to Winning @ Work: Decoding the Sunday Scaries*. <https://www.linkedin.com/blog/member/career/your-guide-to-winning-work-decoding-the-sunday-scaries>
- [14] Amanda Hess. 2024. *It's Not Just You: Sunday Scaries Are Common – But Beatable*. <https://www.fastcompany.com/90856298/its-not-just-you-sunday-scaries-getting-worse>
- [15] Interaction Design Foundation. 2025. *Design Iteration Brings Powerful Results: So, Do It Again Designer!* <https://www.interaction-design.org/literature/article/design-iteration-brings-powerful-results-so-do-it-again-designer>
- [16] Seppo E. Iso-Ahola and Roy F. Baumeister. 2023. Leisure and Meaning in Life. *Frontiers in Psychology* 14 (2023), 1074649. doi:10.3389/fpsyg.2023.1074649
- [17] Jin-Gyu Jeong, Seung-Wan Kang, and Sang-Bin Choi. 2020. Employees' Weekend Activities and Psychological Well-Being via Job Stress: A Moderated Mediation Role of Recovery Experience. *International Journal of Environmental Research and Public Health* 17, 5 (2020), 1642. doi:10.3390/ijerph17051642
- [18] Lucy Kerlin. 2020. *Human Values: Understanding Psychological Needs in a Digital Age*. <https://www.bbc.com/>
- [19] Yiran Li, Fang Liang, Qian Xu, Shuang Gu, Yao Wang, Yixuan Li, and Zhiqiang Zeng. 2021. Social Support, Attachment Closeness, and Self-Esteem Affect Depression in International Students in China. *Frontiers in Psychology* 12 (2021), 618105. doi:10.3389/fpsyg.2021.618105
- [20] Saul McLeod. 2025. Maslow's Hierarchy of Needs. *Simply Psychology* (2025). doi:10.5281/zenodo.15240897
- [21] Muhammad Naeem, Wilson Ozuem, Kerry Howell, and Silvia Ranfagni. 2023. A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. *International Journal of Qualitative Methods* 22 (2023), 16094069231205789. doi:10.1177/16094069231205789
- [22] Zhuochao Peng, Qingyuan Lin, Jun Hu, Haiyan Xue, and Pieter M. A. Desmet. 2025. Design Considerations for Mood-Regulation Interventions: Insights from a Case Study on the "Sunday Blues". *Proyecta56, an Industrial Design Journal* 5, 1 (2025), 8–22. doi:10.24310/p56-idj.5.1.2025.21571
- [23] Richard M. Ryan, James H. Bernstein, and Kirk W. Brown. 2010. Weekends, Work, and Well-Being: Psychological Need Satisfactions and Day of the Week Effects on Mood, Vitality, and Physical Symptoms. *Journal of Social and Clinical Psychology* 29, 1 (2010), 95–122.
- [24] Charles R. Snyder. 2005. *Handbook of Positive Psychology*. Oxford University Press.
- [25] Miklós Szondy and Péter Fazekas. 2024. Attachment to Robots and Therapeutic Efficiency in Mental Health. *Frontiers in Psychology* 15 (2024), 1347177. doi:10.3389/fpsyg.2024.1347177
- [26] Technical University of Eindhoven. 2019. *DataFoundry (Version 0.8.50) [Computer software]*. <https://data.id.tue.nl/>
- [27] Andreas Wirtz, Friedrich Nachreiner, and Kerstin Rolfes. 2011. Working on Sundays – Effects on Safety, Health, and Work-Life Balance. *Chronobiology International* 28, 4 (2011), 361–370. doi:10.3109/07420528.2011.565896
- [28] Jiri Zuzanek. 2014. Sunday Blues: Have Sunday Time Use and Its Emotional Connotations Changed Over the Past Two Decades? *Time & Society* 23, 1 (2014), 6–27. doi:10.1177/0961463X12441173