# A Grounded Theory on the Relation of Time Awareness and 

## Perceived Valence

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Supplementary Material

## Text S1

## Interview questions

## Part 1: Time experience

Key question: Tell me, how did you experience the time in the library?
How would you describe the passage of time?
How did your experience of time change over the course of time? What were the triggers?
To what extent did you want to know the time?
Have there been moments when you have forgotten time? Why was that? Can you describe this feeling more precisely?

Were there moments when time was particularly present to you? What was the reason for that?

## Part 2: Dealing with doing nothing

Key question: What have you been thinking about during that time?
How was it for you to sit that long?/How did you explore the space?
What did you expect from your time in the library?
To what extent did you have strategies for dealing with the time?
What was it like for you to stay in the library for so long?

## Part 3: Room atmosphere

Key question: How did you feel about the atmosphere of the library?
What did you notice in particular? (Positive? Negative?)
How did the atmosphere of the room affect your own feelings/well-being?
What do you associate with libraries/this library?

## Part 4: Comparison of sessions

Key question: If you think about the first session, what was different than today?
How did the passage of time feel different?
How has your awareness of time changed?
Why did the passage of time feel different on the two days?
How would you generally compare the atmosphere between the two sessions?
What can you personally take out of this study?

## Text S2

Results of the Latent Profile Analysis (LPA) for the dependent variables time awareness and perceived valence

## 1. Analysis of Model Fit



Figure 1. Model fit comparison of Akaike information criterion (AIC) and Bayesian information criterion (BIC) for one to nine clusters and for four models with different parameter estimations for variances and covariances. Lower values indicate better model fit. The lowest AIC can be found for a four-cluster solution with varying variances and covariances fixed to zero (2). The lowest BIC suggests a two-cluster solution for the same model.

## Table 1.

Summary of model fit criteria for one- to five-cluster solutions for LPA with varying variances and covariances fixed to zero.

| Cluster | LogLik | AIC | BIC | Entropy | BLRT_p |
| :---: | :---: | :---: | :---: | :---: | ---: |
| 1 | -186.29 | 380.58 | 389.34 | 1 | - |
| 2 | -173.45 | 364.90 | $\mathbf{3 8 4 . 6 1}$ | 0.84 | 0.010 |
| 3 | -169.02 | 366.04 | 396.69 | 0.89 | 0.317 |
| 4 | -158.33 | $\mathbf{3 5 4 . 6 6}$ | 396.26 | 0.90 | 0.069 |
| 5 | -154.67 | 357.34 | 409.89 | 0.91 | 0.475 |

LogLik $=$ Log-Likelihood, AIC $=$ Akaike information criterion, BIC $=$ Bayesian information criterion, BLRT_p = Bootstrap Likelihood-Ratio Test. Lowest AIC and BIC values are printed in bold.

## 2. Further Analysis of Two-Cluster Solution (Varying Variances, Covariances 0)

Table 2.
Summary of standardized cluster centers for time awareness and perceived valence and mixing probabilities for two-cluster solution.

| Cluster | Time awareness | Perceived valence | Mixing probabilities |
| :--- | :---: | :---: | :---: |
| $1(n=39)$ | -0.64 | 0.18 | 0.61 |
| $2(n=27)$ | 1.01 | -0.28 | 0.39 |

$n$ refers to the number of observations, not to the number of participants.


Figure 2. Scatterplot and density distribution of 66 observations grouped by two clusters on the variables of time awareness and perceived valence. Values are standardized.

## 3. Further Analysis of Four-Cluster Solution (Varying Variances, Covariances 0)

## Table 3.

Summary of standardized cluster centers for time awareness and perceived valence and mixing probabilities for four-cluster solution.

| Cluster | Time Awareness | Perceived valence | Mixing probability |
| :--- | :---: | :---: | :---: |
| $1(n=3)$ | -1.51 | -1.88 | 0.04 |
| $2(n=15)$ | 0.97 | -1.05 | 0.23 |
| $3(n=12)$ | 1.04 | 0.77 | 0.17 |
| $4(n=36)$ | -0.61 | 0.34 | 0.56 |

$n$ refers to the number of observations, not to the number of participants.


Figure 4. Scatterplot and density distribution of 66 observations grouped by four clusters on the variables of time awareness and perceived valence. Values are standardized.

## Table S1.

Category system

| Main category | Codes | Subcodes |  | Definition and Anchor Quotation |
| :---: | :---: | :---: | :---: | :---: |
| Person |  |  |  | Description of the individual experience |
|  | Perceived valence of the stay |  |  | Evaluation of the experience |
|  |  |  |  | Positive evaluation of the overall stay |
|  |  | Pleasant stay |  | Actually quite pleasant. I just got a little bored and tired in the end, yes. But apart from this it was okay. P16-1-E |
|  |  |  |  | Unspecific evaluation of the stay in the sitting condition |
|  |  | Evaluation of sitting |  | For me, it is a neutral feeling to sit as it is already neutral by now because I already sit more than I stand in everyday life. P20-S-2 |
|  |  |  |  | Negative evaluation of the stay regarding the sitting condition |
|  |  |  | Sitting negative | I: How did you feel sitting for such a long time? <br> P: Strenuous! <br> I: Strenuous? <br> P: Yes! My bottom hurt at some point, and then it was difficult to remain like this, because I had to find another position and the people were glancing at me a little strangely: Why are you just sitting there and doing nothing? Yes... P17-S-2 |
|  |  |  |  | Positive evaluation of the stay regarding the sitting condition |
|  |  |  | Sitting positive | I: So please tell me, how did you experience the time in the library? |


| Main <br> category | Subcodes | Definition and Anchor Quotation |
| :--- | :--- | :--- |
|  | Evaluation of <br> exploring | P: For me, it was a pleasant time as I had time to <br> sort my thoughts. Besides, the chairs are pretty <br> comfortable. It was a pity that I couldn't sit at a <br> window. Yoar. I found it interesting. P8-S-1 |
|  | Exploring positive | Evaluation of exploring |
|  | Positive evaluation of the stay regarding the exploring <br> condition |  |





| Main category | Codes | Subcodes |  | Definition and Anchor Quotation |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | looking at the architecture and so let my thoughts wander, and also then. P4-S-1 |
|  |  |  |  | Attention, focus and the ability to concentrate are explicitly described |
|  |  |  | Concentration/attention/focus | Well, of course, while reading it gets better again. You concentrate on a certain content, but as you walk around without orientation[...] P12-E-2 |
|  |  |  |  | Difficulties to concentrate |
|  |  |  | Difficulties to concentrate | And then I also couldn't concentrate the whole time and then I was just thinking about things and then, yes. P31-S-1 |
|  |  |  |  | Explicitly reported "meditation" or "meditative experience" |
|  |  |  | Meditation | And then I don't think about time. Then you have such a "relaxed-body-thing" just sitting there, like meditation in the end. P8-S-1 |
|  |  |  |  | Physical sensations |
|  |  | Physical state |  | Exhausting, especially because my neck hurt and I had to move then, and also got up briefly. P16-S-2 |
|  |  |  |  | Fatigue, tiredness, physical exhaustion |
|  |  |  | Fatigue | Then in the end, time has pretty dragged on and tiredness raised again and this was not only just positive anymore. P9-S-1 |
|  |  |  |  | Hunger |
|  |  |  | Hunger | The only thing was that I got hungry at some point which was a little... So I thought „Yummy, food", but despite this it was rather relaxed. P32-S-1 |
|  |  | Emotional state |  | Unspecific emotional state |



Unspecific tense state

Stress/tension

| Insecurity |
| :--- |

And even now it was such a must-feeling. I have to walk around here. I have to look at something to get this finished. And this must-feeling, how can I describe this more precisely? Maybe... no, I can't describe it more precisely, maybe a feeling of compulsion. P23-E-1

In the first experiment. That's when I was also a lot more concerned, because I didn't exactly know what was coming up. P20-S-2
Description of restlessness

## Restlessness

Yes. And actually, this whole time has been about where I go. It was very, the whole time was a little restless. P8-E-2
Description of impatience
Impatience
I got tired quite quickly, and because there was nothing I could do to distract myself, I also became - yes, almost impatient in the end. Because I





## Description when time became more aware

Especially present... uh yes, especially in the end I was more and more thinking about how much time already has passed and then, accordingly, the time was more present. As this gong came, time was present because then I knew what time it was, approximately. Those were the moments in which time was very present. P26-S-1

## Time was more aware because the person was tired

More aware because of tiredness

At some point it [time] started to seem long and as I realized that... Well, first of all, I can't concentrate that much anymore and as I got somehow tired and hungry, I realized that walking around wasn't that satisfying anymore. P32-E-2

## Description of when time was not aware

Time not aware
I think a lot of time has passed at the beginning without me realizing it. P16-E-1

Forgetting time without goal orientation A feeling that is completely out of time. Distinct to forgetting time, which is limited to forgetting the "clock time".


Forgetting time by concentrating on an activity

Forgetting time due to concentration

Especially in the end, when I started to deal with the film book. That was really interesting. I stopped thinking about time then. P5-E-2

Forgetting time due Forgetting time through distraction
to distraction



| Main <br> category Codes | Subcodes | Definition and Anchor Quotation |
| :--- | :--- | :--- |
|  |  |  |
|  | Influence of the activity on the speed of time |  |
|  | Influence of the activity | I felt that the time passed more quickly the last time. <br> But only in the beginning, because then I had <br> something to do. Because I looked at the floors one <br> by one, the books that are there, the shelves. P16-S- |
|  |  |  |

Influence of temporal orientation on the passage of time

But then I thought to myself: no actually it is good, because time passes much slower if I wanted to look at the clock now somehow. And then I would have another point, another orientation point and then I would try to determine the time from any things. That's why I'm actually quite happy that I couldn't read the time. P5-E-2
No temporal orientation
So today time passed a little faster than yesterday, but not so much. Maybe also because yesterday I still had a certain temporal orientation, because I was sitting at the same place all the time, I could see when people took a break and when they came back. And today I didn't have a temporal orientation at all. P5-E-2
Avoiding timers

Try not to look at the clock

When I accidentally looked at a clock. And then in the end I think there's a church somewhere, if you look outside and I wasn't sure if there was a clock and then I avoided looking out there. P27-E-2



| Main <br> category | Codes | Subcodes |
| :--- | :--- | :--- | | Definition and Anchor Quotation |
| :--- |


| Main <br> category | Codes | Subcodes |
| :--- | :--- | :--- |
|  |  | Definition and Anchor Quotation |
|  |  | It was a bit systematic... so I made sure I was on <br> every floor and walked around all the time, but... I <br> don't know if I was everywhere. No, I didn't have a <br> very concrete systematic... so I looked at the plans <br> and checked what other rooms there were [...] P31- <br> E-2 |
|  | Explicit seeking and desire for an activity |  |
|  |  | It was unusual not to have any devices or nothing at <br> all. I don't know, you just try to keep yourself busy, <br> to observe other people or I don't know... to think <br> about something. P27-S-1 |

Conscious perception or "letting yourself be affected", partly explicit partly implicit strategy

## Conscious perception

That's why I've decided a little to wait for what's happening and to perceive everything around me, because I haven't been inside yet. I've already been in the library but always outside. P1-S-1
Strategies do not lead to the desired result
$\left.\begin{array}{r}\text { Strategy not } \\ \text { successful }\end{array}\right]$

Then, for example, I sat down and read a couple of books and that's when time didn't really go any faster. P20-E-1
Explicitly no use or search for strategies to deal with time

## No strategy

Strategies to deal with time... no, I didn't feel like something I have to bear with, but because of that it wasn't something I had to get around quickly so that I would try to somehow count sheep or until 60 or something. P1-S-1



| Main category | Codes | Subcodes |  | Definition and Anchor Quotation |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | clacking from walking was the loudest in the whole library. P5-E-2 |
|  |  |  |  | Description of the temperature in the library |
|  |  | Temperature |  | I perceived the temperature as positive because I was here, honestly, the day before yesterday or so to work. I found it much too cold compared to outside and today, for example, I found it pleasant. P32-E-2 |
|  |  |  |  | Unspecific or neutral description of spatial elements |
|  |  | Room elements |  | Because there are ten floors, in the last - after the seventh you can't get into any more, no matter what you do. And then it was quite a lot, because there are many corridors, many staircases, many elevators. A lot, a lot, a lot. P8-E-2 |
|  |  |  |  | Negative evaluation of room elements |
|  |  |  | Negative room elements | P: Yes, exactly. Have you ever looked at the stairways? <br> I: Yes. <br> P: They are super ugly, too. So if there were pictures hanging on the wall somehow, then it would work. P8-E-2 |
|  |  |  |  | Positive evaluation of room elements |
|  |  |  | Positive room elements | Nothing negative, but positive that everything is so empty and that you can find a place to sit down in peace and, oh yes, the cafeteria offer is not so nice. But otherwise, great. P2-E-2 |
|  |  |  |  | Description and evaluation of the atmosphere in the library |
|  |  | Room atmosphere |  | I thought it was all very, yes artificial I must say, because somehow you can... in this room in the middle there is no real daylight and the air...so there |


| Main <br> category Codes | Subcodes | Definition and Anchor Quotation |
| :--- | :---: | :---: |
|  | is always this ventilation in the background. I don't <br> like that. P31-E-2 |  |
|  | Calming | Calming effect of the atmosphere <br> But I think that made me a bit calmer, that yes. But <br> at the same time, a bit like I have to look around." <br> P17-E-1 |
|  | Room atmosphere is perceived as motivating, a good <br> learning or working atmosphere |  |
|  | Yes, I found the atmosphere very pleasant, because <br> I like to have this learning atmosphere around me, <br> because it motivates me to continue learning. P16- <br> S-2 |  |

## Atmosphere pleasant, friendly, beautiful

Pleasant. I like the fact that there were high ceilings, open rooms, you could see far everywhere and yes. I also liked the fact that it wasn't completely, completely quiet. It wasn't so oppressive, but rather relatively open, you could describe it that way, friendly yes. P31-S-1
Effect of the room atmosphere
Influence of the atmosphere
I would say that this has made me feel positive. Well, I was positive before, so you can't see the


I = Interviewer; P = Participant with Participant-ID-Condition (Exploring/Sitting)-Session (1/2)

