

# APPENDIX

# Appendix A | project brief

Personal Project Brief - IDE Master Graduation



Dynamic textile patterns for color change in jacquard canvas over time project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 01 - 03 - 2023 13 - 10 - 2023 end date

## INTRODUCTION \*\*

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

Designers who work with textiles have a tendency to view woven fabrics as unchanging, or static, materials. However, to truly utilize the benefits of woven fabrics in these systems, designers need to have a deeper understanding of how these textiles can be designed to exhibit responsive behaviors in their use. This involves exploring and utilizing the properties of woven fabrics to create interactive systems that are dynamic and adaptive, such as Smart Textiles. However, for this research, I consider (smart) textiles animated exclusively through their inherent material qualities, more than considering the application of computational or biological components [1].

Textiles have the ability to undergo transformations in multiple forms, including alterations in appearance such as changes in color, modifications in touch such (changes in texture), or a combination of both. These changes can either be reversible or irreversible. In particular, by leveraging on their irreversible changes, independently of the time of the change, it is possible to give them meaning while they age over time. There are different ways explored to see these changes for example through a change in the pattern of the textile or through a change in the color of a pattern where the pattern itself doesn't change. To allow this process, so-called dynamic textile patterns play an important role because they show an inherent quality to change expressions while used in their lifetime [2].

Garments made of materials meant to be used for a long time would improve then with age, extending the lifecycle of the product and giving a sense of affection to the wearer. Some recent studies have experimented with dynamic textile expressions through colors that change over time, using plant dyeing without the use of mordants [3] or exploring the natural changes in the color on plain and on jacquard-patterned woven textiles [4]. In particular, by using a jacquard loom (Jacquard fabric refers to any textile produced on a jacquard loom), it's possible to enable the weaving of intricate designs such as damasks, stripes, checks, brocades, and tapestries. The patterns are formed by the intentional and controlled skipping of warp yarns over weft yarns, and, together with colors, are then incorporated into the weave instead of being printed or dyed onto the surface of the fabric. In this way, textiles can gain the ability to be dynamic and age in unique ways depending on their environment.

The graduation project will be supervised by Dr Holly McQuillan as chair and Stefano Parisi as mentor. Holly McQuillan explores the aesthetic and technical development of systems and methods for zero waste textile forms and multimorphic textiles, while Stefano Parisi explores the material experience in the area of emerging materials, from bio-based to smart materials.

Together with them, I will work also with Maximilian Rabe, senior menswear designer of G-Star Raw who worked also for Aithor Tourpe and Asics and became an expert in woven textiles and now knits.

[1] Buso, A., McQuillan, H. L., Jansen, K. M. B., & Karana, E. (2022). The unfolding of textileness in animated textiles: An exploration of woven textile-forms. <https://doi.org/10.21606/drs.2022.612>  
[2] Persson, L., Worbin, L. (2008) Designing dynamic and irreversible textile patterns, using a non-chemical burn-out (ausbrenner) technique.  
[3] Worbin, L. (2010). Designing dynamic textile patterns. University of Borås, Swedish School of Textiles.  
[4] Talman, R. (2018). Designing for Multiple Expressions: Questioning Permanence as a Sign of Quality in Textiles, Journal of Textile Design Research and Practice, 6:2, 201-221, DOI: 10.1080/20511787.2018.1514697

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Personal Project Brief - IDE Master Graduation

introduction (continued): space for images



image / figure 1: Natural various changes in expression on plain and jacquard-woven textiles (Talmann, 2018)

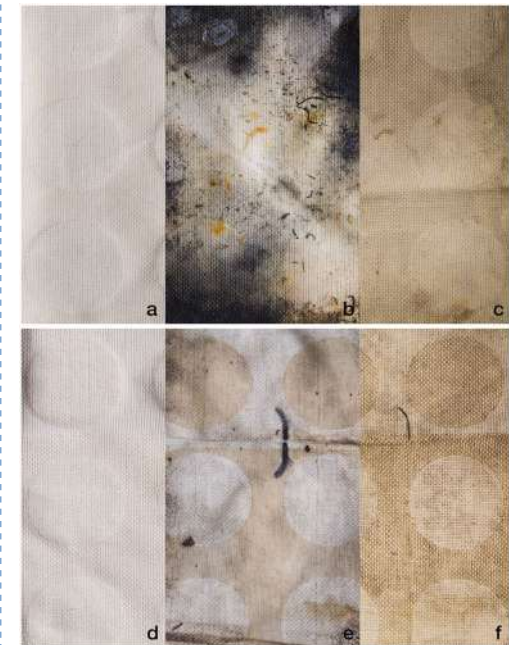


image / figure 2: Natural various changes in expression on plain and jacquard-woven textiles (Talmann, 2018)

PROBLEM DEFINITION \*\*

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

The natural aging of fabrics can be used in the design process to create dynamic patterns, colors, or structures in textiles in order to link the textile products back to the inherent qualities of materials. Naturally, this happens with raw denim: through use and over time, denim shapes and fades depending on the wearer, creating an individual pattern and addressing what is called wear and tear, which adds value and a story to the products [5]. However, even if this process can be labeled as a dynamic textile process, in the case of denim we see a phenomenon of discoloring (fading), involving a dyeing behind. In fact, regardless of whether the dye is natural or chemical, there is always energy consumption involved upstream. The idea, on the other hand, is to let the fabric color according to its use, trying to avoid in this way also the dyeing process at the base.

For this reason, selecting natural fibers such as cotton or linen in their ecru/raw state (unbleached and untreated) facilitates and accelerates changes in color and texture as exposed to UV lights or moisture. However, traditional raw fabric has a static color and it's not really used if not been dyed before. For this reason, the way the yarns are woven and the respective pattern can serve the material to color over time and according to conditions and use.

[5] Townsend, K. 2011. "Denim Garment as Canvas: Exploring the Notion of Wear and Tear as a Fashion and Textile Narrative."

ASSIGNMENT \*\*

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... . In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

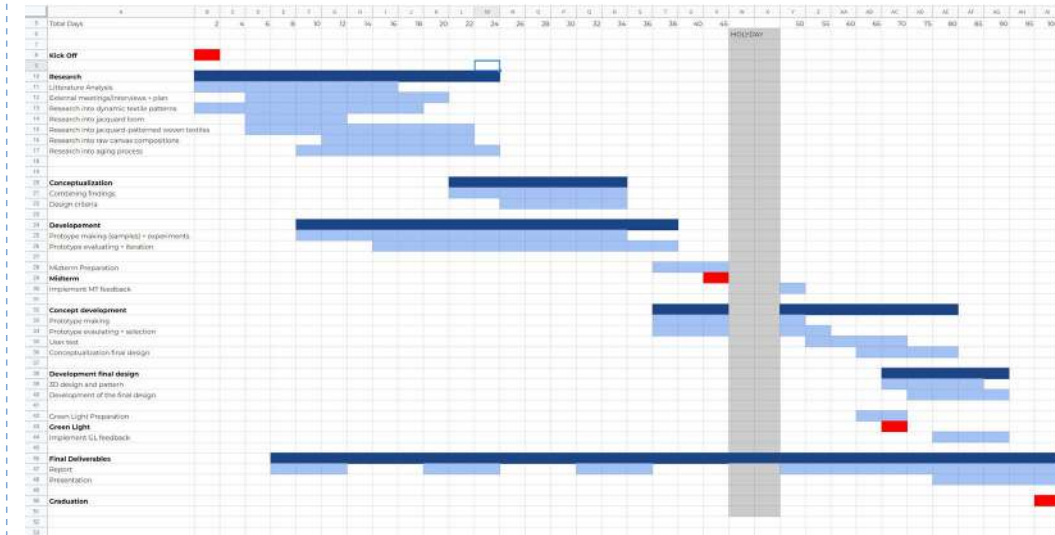
This project aims to explore the potential of using dynamic textile patterns in Jacquard-patterned woven fabrics with raw yarns in different compositions to create a textile that changes color over time through its daily care (washing, ironing) or through outdoor exposure such as rain or warmth.

As the dynamic textile pattern is on raw fabric, the garment will be sustainable as ecru yarns are in their original state: undyed and untreated. The fabric should be durable, strong, and last long. Moreover, breathability and comfort while wearing can bring physical well-being to the wearer. The dynamic pattern can also bring mental well-being to the wearer by providing a sense of novelty and excitement for the wearer, who can also appreciate and value the garment more as it adapts and changes over time. The project's methodology will see first research on existing dynamic textile patterns and their potential for use in fabrics. This step will be followed by conducting a series of experiments to test the color change properties of new dynamic textile patterns, such as camo, in raw fabric under different external stimuli. Given the limited amount of time, these experiments may sometimes involve extreme conditions or processes to accelerate color change (e.g. black laundry, burial, immersing the samples in solutions that contain substances present in some outdoor conditions but in increased quantities). Some examples of treatments can be applied to see changes over time such as coatings that can be activated by different factors (heat, moisture, and UV light), special dyes or pigments that can react to the environment or metallic yarns that can oxidate. The fabric has to act as a white "canvas". An evaluation of the visual appeal and practicality of these dynamic textile patterns will be conducted through user testing and feedback, using first the Material Driven Design method for the first samples and then the Soma Trajectories method for the more advanced prototypes. At the end of the project, I would like to create a garment that represents the objective of the research and its practical application, through a minimal waste design thinking.

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 1 - 3 - 2023 13 - 10 - 2023 end date



# Appendix B | company agreement



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.

This project stimulates my interest in a number of ways. First of all, I believe in the multidisciplinary nature of design and I believe that textiles and clothes must be part of the design baggage that a product designer must have. A garment is a product in all respects because it involves the same industrial processes that can be seen in every project. Since I was a child, garments, especially technical ones, have always fascinated me and since then I have always tried to keep up to date on their design, dyeing, fit, draping, and above all textiles. As a lover of workwear, I have always had raw fabric products at hand, to which I certainly owe a sense of affection given its durability. Moreover, discovering the potential of smart textiles animated through their inherent material qualities and that of dynamic textiles patterns has opened up a range of reflections that I believe, both as a person and as a designer, stimulating and extremely interesting. I understood that textiles must be considered not as a means or a part of the system, but as a system in its own right, capable of bringing by default an infinite potential to its applications. Manufacturing processes in this way can therefore be revolutionized, proceeding more and more toward a direction of sustainability that is difficult to achieve especially in the field of fashion.

During my bachelor's previously and now during my master's, I had the opportunity to be educated in 2 different countries with 2 different design schools, jumping from a more artistic and material-based approach to a technical-scientific and method-driven one. During this heterogeneous academical journey I became a designer that can see the world through both a technical and scientific lens and an artistic and human-centered lens. Moreover, almost 6 months ago I started my internship at G-Star Raw as a 3D designer and I couldn't have imagined anything better. In fact, it is here that I am consolidating and improving my knowledge in the fashion and textile field. I'm dealing with 3d models, styles, patterns, artworks, fittings, and launches, but above all, being part of the knits department, I'm learning a lot about flat knits and jerseys, such as constructions, gauges, or manufacturing techniques. Now instead, with this graduation I have the opportunity to expand my knowledge of woven textiles, understanding their inherent potential, when I can label them as smart and the related production processes.

Researching human perception and interaction with variable textiles is also a field in which I aspire to gain knowledge during my graduation. The life of every human being is surrounded by fabrics and for this reason, I consider the relationship that the user has with their garments over time to be vital. I would therefore like to learn the behavior of raw canvas understood as a real canvas, where the experience of the wearer influences his aging.

Concluding, I believe that this project offers many opportunities to consolidate my skills in the textile and apparel world, which I am sure will open my curiosity to new horizons, making me a conscious and eclectic designer.

FINAL COMMENTS

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

Graduation Contract (model)  
Delft University of Technology / Faculty Industrial Design Engineering (IDE)

Including Annex I: 'General starting-points regarding IDE external graduation projects'

The Parties

1. G-STAR RAW C.V.  
Hereinafter to be referred to as 'the Company';

And

2. GIOVANNA CIMINO  
Registered as a student at the Delft University of Technology (DUT) in the Industrial Design Engineering (IDE) Master programme, hereinafter to be referred to as 'the Graduating Student';

Whereas

- In entering into this Graduation Contract, relating to the execution of the graduation project resulting in a Master's thesis, the Graduating Student and the Company shall assume the general starting-points formulated by the Faculty of IDE of DUT, as stated in Annex I which is part of this graduation contract;
- The purpose of the Graduation Contract is to provide adequate guidance for the graduating project to be executed on the basis of a Company question and to allow the Graduating Student to graduate in accordance with the graduation rules of the Faculty of IDE of DUT;

Have agreed as follows

Graduation project

Article 1

The Parties agree that, as part of graduation from the IDE Master programme at DUT, the Graduating Student shall execute a graduation project on the basis of a Company question, under supervision of DUT, resulting in a Master's thesis which will be assessed by DUT. While carrying out the graduation project the Graduating Students remains enrolled as a student at DUT.

Article 2

The graduation project plan is described in Annex II and is scheduled to start on 03/03/2023 and ends in mid-October 2023 (total 20 weeks, if fulltime). Extension of this period is possible by mutual agreement.

Approval of the graduation project

Article 3

Before determining the graduation project, the Parties shall consult on the content of the project with the supervisory team as described in Annex I.

**Article 4**

The Parties agree that the Faculty of IDE must formally approve the graduation project before it begins and, if, during execution of the graduation project, the supervisory team deems it necessary to make fundamental changes compared to the original project, the supervisory team shall submit the revised version to the Faculty of IDE for approval.

**Article 5**

The Parties agree that the chair has the final responsibility for the graduation project.

**Workplace and guidance****Article 6**

In connection with the graduation project plan, the Company shall enable the Graduating Student to perform work at the Company and shall make a suitable workplace available for this. The Company will provide adequate guidance for the Graduating Student.

**Article 7**

The Graduating Student shall not carry out any other activities at the Company outside the project plan referred to in Article 2.

**Compensation and reimbursement****Article 8**

1. The Company undertakes to transfer € .. (.....euros) each month to the Graduating Students bank account during the period referred to in Article 2.
2. Reimbursement for travel and/or accommodation expenses and/or prototyping costs and/or other expenses are agreed on between the Company and Graduating Student as follows:.....

**Result and rights to the result****Article 9**

The intellectual property rights to all student results relating to the graduation project, with exception of copyright on the graduation report, shall vest in the Company. Nevertheless, DUT is allowed to use said results for its own educational and research activities and for its promotional and publicity purposes, which are DUT's rights according to the tasks and objectives of the university as laid down in the law. DUT will in executing these rights take into consideration the interests of all involved.

**Article 10**

1. If the Graduating Student's work results in an invention for which a patent may be requested, the owner of the IP on the results of the graduation project, i.e. the Company, shall be entitled to the patent, unless the invention is unrelated to the subject-matter of the work.
2. All costs associated with an application for and/or maintenance of a patent shall be borne by the Party entitled to the patent.
3. If the Graduating Student has made an invention relating to the graduation project which may be patented, he/she shall be identified as the inventor in the patent application and patent and, in connection with the monetary significance of the invention and circumstances under which it occurred, he/she shall be entitled to a financial compensation – for the loss of a patent – from the Company. In case one or more employees of DUT claim to have a significant part in said patent the Company shall enter into an agreement with the university.

**Ownership of models and prototypes****Article 11**

Models and prototypes will be the property of the Party at which costs they have been produced i.e. the Company.

**Reporting****Article 12**

The Graduating Student shall periodically report to the Company, regarding progress and results of the graduation project. The project shall be concluded with a graduation report and a public presentation. The Graduating Student shall send or deliver the graduation report to the Company.

**Confidentiality of Company background information****Article 13**

1. Confidentiality obligations shall be observed only for information the Company provides the student with. The research done - and the results generated - by the student will be considered foreground information.
2. All background information from the Company with which the Graduating Student has become acquainted during the graduation project, and in respect of which the Graduating Student has been informed explicitly by the Company that the information is confidential, will be kept confidential by the Graduating Student for a period of five years. This duty shall not be applicable to:
  - information which is in the possession of the Graduating Student at the moment the Graduating Student is informed of this information by the Company;
  - information which is generally known on the day on which the Graduating Student is informed of this information by the Company;
  - information which has been legitimately obtained by the Graduating Student from third parties;
  - information which has become generally known after the date on which the Graduating Student has been informed of this information, other than through the illegitimate action or negligence of the Graduating Student;
3. The Graduating Student will put information designated as confidential in a Confidential Appendix to the Graduation Report. The Company is allowed to check whether the report does not contain any confidential information. Foreground information is not to be left out of the graduation report or included in the confidential appendix. The Graduating Student is allowed to share confidential information with the DUT supervisors and/or examiners who are, according to the Collective Labour Agreement of Dutch Universities, obliged to treat this information confidential.

**Publication****Article 14**

The graduation project shall be concluded with a public presentation at the Faculty of IDE, taking into account possible confidentiality as said in Article 13, and/or publication delay of the graduation report (embargo) in Article 15.2.

**Article 15**

1. The graduation report, with exception of the Confidential Appendix, shall be made available for public inspection at the repository of DUT from the moment the Graduating Student uploads the report (approximately 1 week before the public presentation).
2. If the Company at the green light-meeting (approximately 4 weeks before the public presentation) believes that its interests may reasonably be harmed by the report's publication, the Company can delay said publication by requesting a temporary, one- or two-year embargo from the IDE's Educational Director, under payment of the valid embargo fee.
3. None of this shall affect the Graduating Student's right to issue the graduation report including the Confidential Appendix to the DUT supervisors.

**Article 16**

During execution of the graduation project, the Graduating Student shall exchange ideas with third parties about the project only with the Company's permission. The Graduating Student may not be held liable, however, if the graduation project (or data for it) becomes public through no fault of his/her own, except in the case of a deliberate act/omission or gross negligence on the Graduating Student's part.



**Liability****Article 17**

1. The Company shall take care for due observance of the relevant provisions regarding liability for the Company and Graduating Student.
2. If the Company uses or applies any result obtained from the Graduating Student's graduation project, or enables third parties to use or apply this, the Company shall indemnify the Graduating Student and DUT against damage claims by it and/or third parties, unless this damage results from a deliberate act/omission or gross negligence by the Graduating Student.

**Early termination****Article 18**

1. If one of the Parties - the Company or Graduating Student - is of the opinion the other Party is not complying properly with the provisions or obligations arising from this Contract, or has well-founded doubts concerning the continuation of the project, a Party may terminate the Contract.
2. Before terminating the Contract, the Parties must raise the matter with the other Party and request mediation from the DUT supervisory team members.
3. If the Contract is terminated, it shall cease to have effect for both Parties. Confidentiality however, shall be observed as said in Article 14.

**Miscellaneous provisions and applicable law****Article 19**

If the Graduating Student is ill, the Student shall notify the Company mentor.

**Article 20**

If problems, of whatever kind, arise during the graduation project, the Graduating Student shall consult first with the Company mentor.

**Article 21**

The Company and the Graduating Student shall consult with each other, and with the supervisory team to decide on matters not provided for in this Contract.

**Article 22**

Insofar as not otherwise stated, the provisions of Dutch law shall apply to this Contract.

**Agreed, drawn up and signed in duplicate with Annex,**

Dated, 9/3/2023

City of AMSTERDAM  
On behalf of the Company

Dated, 08/03/2023

City of AMSTERDAM  
The Graduating Student

**IDE Graduation Contract (model)****Delft University of Technology / Faculty Industrial Design Engineering (IDE)****Annex I****GENERAL STARTING-POINTS of the FACULTY of IDE****regarding****IDE EXTERNAL GRADUATION PROJECTS**

In entering into the Graduation Contract with a Company relating to the execution of the graduation project resulting in a Master's thesis which will be assessed by DUT (external graduation project), the Graduating Student and the Company shall assume the general starting points, formulated by the Faculty of Industrial Design Engineering of Delft University of Technology, as stated below:

**General**

- 1.1 The Faculty of Industrial Design Engineering is responsible for providing education, conducting research and performing development work relating to industrial design engineering. The *industrial design engineering* field includes knowledge of the development process regarding durable products and services for consumers and professional applications. Briefly stated, the various disciplines in the field focus on the following aspects: technical; aesthetic; ergonomic and commercial. These disciplines fall under the responsibility of the three faculty departments Design Engineering (including Design for Sustainability), Industrial Design and Product Innovation Management.
- 1.2 The Master programmes of the Faculty of Industrial Design Engineering are:
  - Integrated Product Design;
  - Design for Interaction;
  - Strategic Product Design.
- 1.3 The graduation project completes one of the three Master programmes, with the Graduating Student being given the opportunity to demonstrate that he/she can design, and successfully realise a product development project independently.
- 1.4 As a student from an academic institution, the Graduating Student shall, in executing the graduation project, be guided by academic standards with respect to the product design and product development method. For that reason, the Faculty of Industrial Design Engineering shall seek proper consultation and cooperation with the Company concerning the purpose, design and execution of the graduation project. A supervisory team must be formed in this regard.
- 1.5 The university, according to the tasks and objectives of the university as laid down in the law, shall, in spite of any provision made between the Graduating Student and the Company, execute its full rights regarding use and publication of the results of the graduation project, i.e. for its own educational and research activities and for its promotional and publicity purposes, taking into account the interests of all involved. Furthermore, the university shall enter into an agreement with the Company in case one or more employees of the university claim to have part in a patent relating to the graduation project.

# Appendix C | training

### Guidance for the Graduating Student

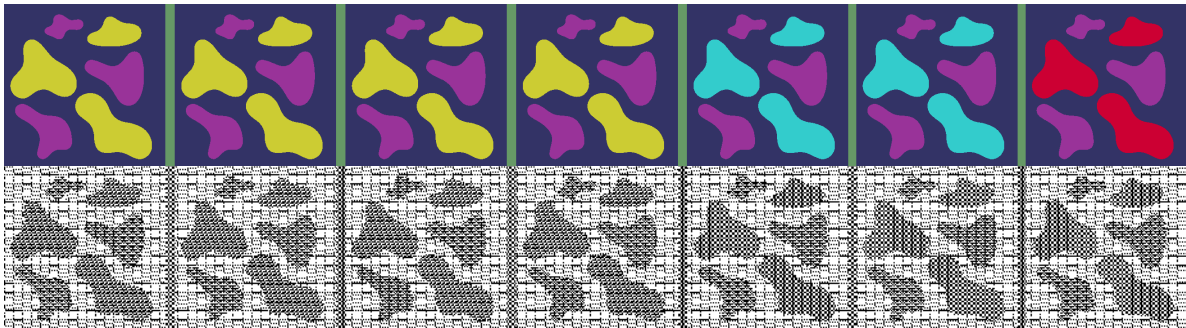
- 2.1 For guidance to the Graduating Student a supervisory team shall be formed, made up of the following persons:
- one Industrial Design Engineering staff member, being the chair of the supervisory team;
  - one other university staff member, being the DUT mentor;
  - one mentor from the Company.
- 2.2 Both chair and DUT mentor of the supervisory team shall be authorised to act as an examiner for the graduation project. The company mentor may attend the examination session as a guest, and shall have an advisory vote in making the judgment regarding the Graduating Student's work for the graduation project.

### Disputes

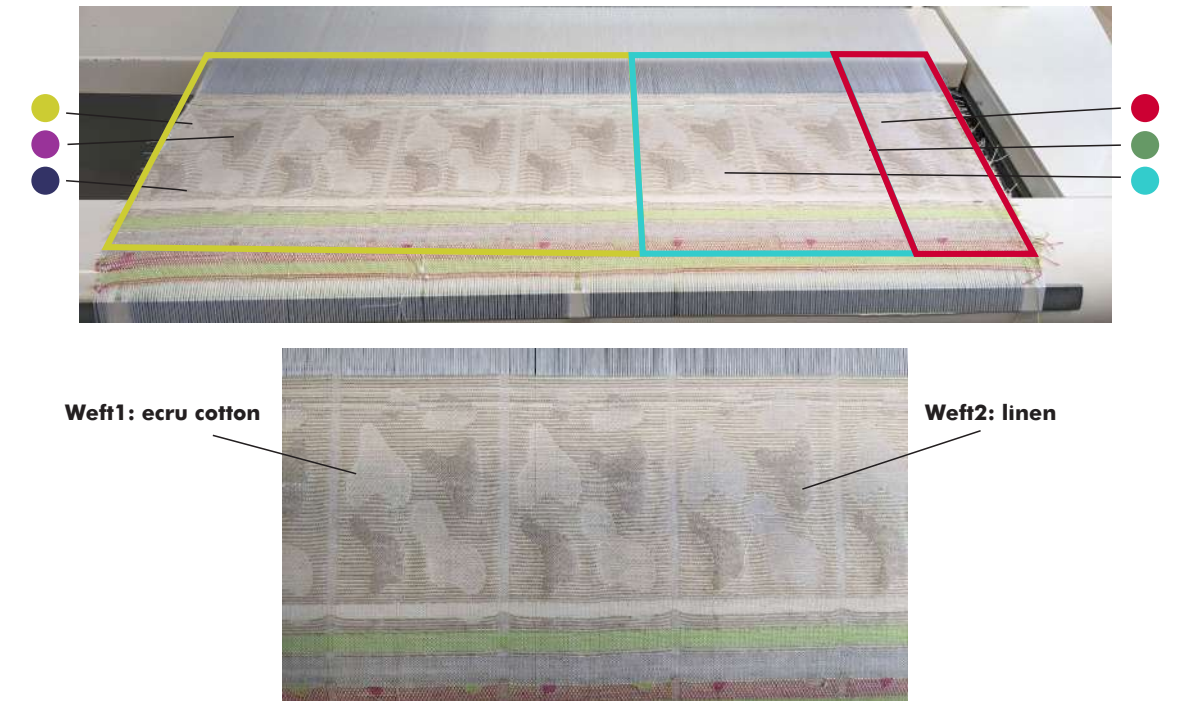
- 3.1 Disputes between the Graduating Student and the company mentor shall be presented to the chair and DUT mentor of the supervisory team with the chair being final responsible.
- 3.2 If the company mentor, the chair and the Graduating Student cannot resolve the dispute, it shall be submitted to the Board of Examiners of the faculty of IDE, and to the Company.

### Training: AdaCAD

- ilace (shiftx(twill)+twill): 8x16
- ilace (satin+shiftx(satin)): 10x20
- basket: 8x8
- basket: 8x8
- basket: 8x8
- ilace (twill+shiftx(twill)+shiftx(twill)): 6x18



### Training: TC2 trial samples



# Appendix D | user study template

## USER STUDIES

By applying the Experiential Characterisation toolkit (Camere & Karana, 2018), it is possible to explore the perception and the sense of affection for materials.

In this user study, the experiential characteristics of the woven samples are explored, focusing on the affective meaning for consumers.

### AIM

To explore the meaning of the samples, understanding how people perceive the emotions that a material transmits is fundamental to giving value to the ageing process of a textile.

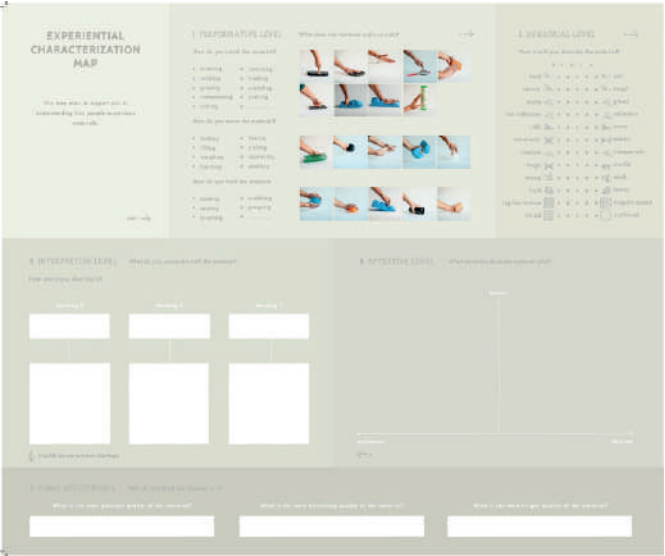
What do the treatments tell the users? Do the samples provide a change in the perception compared to their initial state?

This user study uses the Experiential Characterisation method by Camere and Karana (2018)

and the designed toolkit via: <https://materialsexperiencelab.com/ma2e4-toolkit/>

The Affective Vocabulary reveals emotions that a material elicits, and how these are portrayed and communicated. Note that materials in this case not only address the samples' composition but also imply a specific woven structure and the treatment used to accelerate ageing.

The results of this study will be fundamental to comprehend which constructions and compositions are more positively perceived, but overall which treatment elicits a greater sense of affection and uniqueness. This test will be then useful to narrow down the selection and to find out which ageing process fits the most with the realization of the first prototypes that will be worn by users for a certain amount of time through the soma trajectories' method.



Experiential characterization map

### USER STUDY SETUP

- Individual session: 5 participants (+1 participant for pilot) coded with 001,002...005
- 9 samples (2A, 2F, 3A, 3B, 3G, 4A, 5A, 5E, 5F)
- Printed affective level paper (45x)
- Printed affective vocabulary
- Printed list of associations/meanings
- Phone to record the answers and shoot the interaction
- Consent form (x5)

### SCHEDULE

Perform a pilot study to optimise the user test. If pilot works out, it can be used for the result.

- 45min for participants
- 4min to explain the project/test, and to sign the informed consent form.
- 36min for 9 samples (4min per sample)
- 5min to gather more detailed reasoning for user study to discuss towards textiles ageing over time and their perception if applied into products.



### AFFECTIVE USER STUDY STEPS

With a mic set up the answers of participant will be recorded to analyze and understand what the material communicates about their affective capabilities. Some photos will also be taken to examine the way users interact with samples.



Overview of the interaction with the selected samples

1. Participants are asked to address the affective level to get which emotions they experience towards the material they are interacting with. It is clarified from the beginning that the samples are designed to be used for garments. Since the study is about how textiles age over time, the users are asked to analyze each sample after treatment on the basis of its corresponding initial state, shown together with the designated one.

2. The affective vocabulary (list of emotion) is given and the participants are asked to assign a minimum of 3 from the list s/he thinks the material elicits from him/her.

3. It is then asked to place these emotions on the provided graph to express which of these three emotions are more or less intense, and which are more or less pleasant. The user will also be asked why s/he believes these emotions are elicited.

4. The list of meanings is provided and the participants are asked which associations/meanings are evoked by this experience and why.



Templates provided to the participants for the affective and meanings test

The participants are asked to fill in the reflective questions on the paper:

- The facilitator can ask other questions for clarifying the understanding:

- | PARTICIPANT:  | SAMPLE:                                |
|---|--|
| <p><b>REFLECTIVE QUESTIONS</b></p> <p>Fill in the reflective questions provided on the paper.</p>                 |  |
| <p>1) What is the most pleasant quality of the material?</p>  | <p>_____</p> <p>_____</p> <p>_____</p> |
| <p>2) What is the most disturbing quality of the material?</p>  | <p>_____</p> <p>_____</p> <p>_____</p> |
| <p>3) What is the most unique quality of the material?</p>  | <p>_____</p> <p>_____</p> <p>_____</p> |
| <p>4) What if these samples are not used for garments, but for other products like upholstery or accessories?</p> | <p>_____</p> <p>_____</p> <p>_____</p> |
| <p>Other comments (optional)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>                              |  |

#### Templates provided to the participants for the reflective questions

The answers of participants are analysed in order to find conclusions.

The data related to the affective test are then plotted on the emotion maps in order to get

The data related to the affective test are then plotted on the emotion maps in order to get quantitative results. In particular, the samples are assessed on a scale from unpleasant (-3) and pleasant (3) and then visualized with barcharts to show their average of emotions.

The meanings are instead processed by using the word clouds visualization to understand which associations are the most provoked among all the samples shown.

**SAMPLE:**

Which associations/meaning, among the ones provided in the list underneath, are evoked by this experience? Circle them.

Can you explain why?

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# Appendix E | user study form

PARTICIPANT:

SAMPLE:

Participant ID:  

## REFLECTIVE QUESTIONS

Fill in the reflective questions provided on the paper.

1) What is the most pleasant quality of the material?

2) What is the most disturbing quality of the material?

3) What is the most unique quality of the material?

4) What if these samples are not used for garments, but for other products like upholstery or accessories?

Other comments (optional)

## Dynamic textile patterns for color change in jacquard textiles over time

This research is conducted as part of the MSc study Industrial Design Engineering at TU Delft.

Students: Giovanni Cimino  
Contact person: Giovanni Cimino

## Informed consent participant

I participate in this research voluntarily.

I acknowledge that I received sufficient information and explanation about the research and that all my questions have been answered satisfactorily. I was given sufficient time to consent my participation. I can ask questions for further clarification at any moment during the research.

I am aware that this research consists of the following activities:

1. Conduct a longitudinal wear test

I am aware that data will be collected during the research, such as notes, photos, video and/or audio recordings. I give permission for collecting this data and for making photos, audio and/or video recordings during the research. Data will be processed and analysed anonymously (without your name or other identifiable information). The data will only be accessible to the research team and their TU Delft supervisors.

The photos, video and/or audio recordings will be used to support analysis of the collected data. The video recordings and photos can also be used to illustrate research findings in publications and presentations about the project.

I give permission for using photos and/or video recordings of my participation:  
*(select what applies for you)*

- ☐ in which I am recognisable in publications and presentations about the project.
- ☐ in which I am not recognisable in publications and presentations about the project.
- ☐ for data analysis only and not for publications and presentations about the project.

I give permission to store the data for a maximum of 5 years after completion of this research and using it for educational and research purposes.

I acknowledge that no financial compensation will be provided for my participation in this research.

With my signature I acknowledge that I have read the provided information about the research and understand the nature of my participation. I understand that I am free to withdraw and stop participation in the research at any given time. I understand that I am not obliged to answer questions which I prefer not to answer and I can indicate this to the research team.

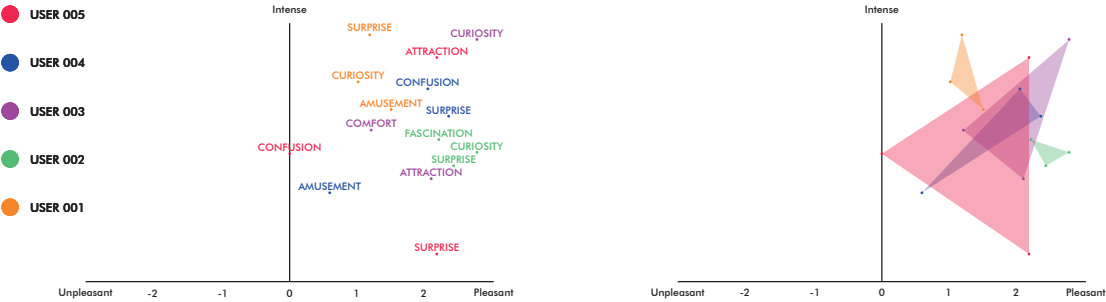
The researchers take the COVID-19 measures into account. I confirm to respect the COVID-19 measures taken and will follow instruction about these provided by the researchers.

I will receive a copy of this consent form.

<div></div>	<div></div>
Last name	First name
<div></div>	<div></div>
___ / ___ / 2023	
Date (dd/mm/yyyy)	Signature

# Appendix F | user study data

## SAMPLE 5A AFFECTIVE LEVEL



### Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
Uniqueness New color Color Color fade / depth in color Color palette	Don't know next color Less homogeneous Pattern in the brown zones Dry handfeel /	Color changing Discolouring in specific areas Tri-color Texture Texture and shapes mixed with color	Yes, it looks less boring Yes, on curtains or sofas No Yes, in the initial state Yes, it would give an edgy look	

## SAMPLE 5A INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>dynamic:</b> due to the pattern <b>futuristic:</b> due to the color	<b>aloof:</b> because of the fading of the colour	<b>dynamic/futuristic:</b> I like it is even change of color and uniform color distribution without any fading	<b>dynamic:</b> the chnage in the texture and colour reveals also a new pattern, partially non visible before the aging process	<b>dynamic:</b> because you don't know the next color



change in texture

color revealing

next color unknown

## SAMPLE 3A AFFECTIVE LEVEL



### Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
Softer to the touch Softness Durability Texture/weave construction The aged look	It looks dirty Dirtiness Stains Color/staining Stains and used quality	Homogeneity Color of bumps Tridimensionality Texture Feeling of history	Yes, on accessories No, it look dirty Yes, for painting canvas No, it's not inviting No, due to the darkness of white	

## SAMPLE 3A INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>aged:</b> color and stains <b>natural:</b> the consistency of the fabric	<b>aged:</b> it looks like it has been dug up and could be very old. It feels like there is a story/history and makes me wonder about what happened to it	<b>aged:</b> the tiny black stains give a very aged look	<b>aged:</b> it looks old and dirty, not really something I will wear, even tho it is softer and smoother than the original one	<b>manufactured:</b> it gives me the sensation that there was a process to make it look aged, because of the homogeneity

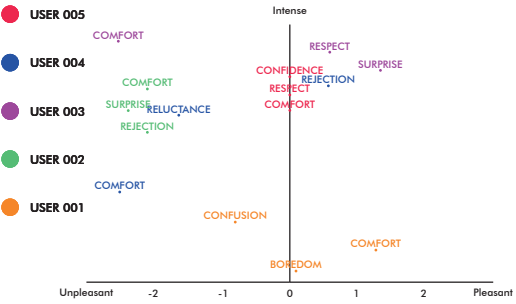


history behind

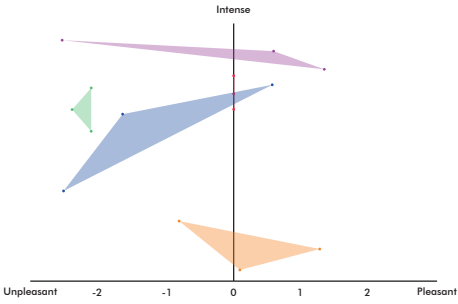
stains

dirty

SAMPLE 2A  
AFFECTIVE LEVEL



Pleasant emotions: n=5/15  
Keywords: uncomfort, respect, surprise



Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
Kept the quality Motif revealing Naturalness Construction and color Texture	Bit stiff Yellowness and stains Roughness Stiffness and dry handfeel Sturdiness	Nice aged effect Toughness Stiffness Construction and texture depth Texture as well	Yes, only on upholstery (too stiff) No Yes, for bar stools Yes, stiffness works but not on body Yes, the sturdiness elevates the aesthetic of a product	It's not comfortable but it sparks my curiosity and makes me to touch/feel/look at it more and more

SAMPLE 2A  
INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>nostalgic:</b> it looks used and old <b>aged:</b> the yellowness makes it aged <b>static:</b> related to the impression of something old	<b>aloof:</b> because of the sturdiness. It is also super dry, almost itchy handfeel. It feels very tight and uncomfortable.	<b>natural:</b> due to the touch	<b>static:</b> because the material is really stiff and makes me feel a pushed away and rejected, other than the inamovibility of the garment per se. Not a really handy/ comfortable garment	<b>durable:</b> it looks like aged but in a nice way, and it gives the sensation that the garment is durable

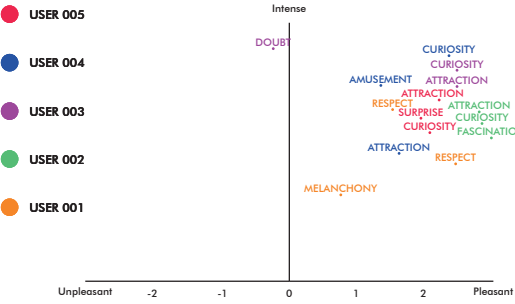


sturdiness

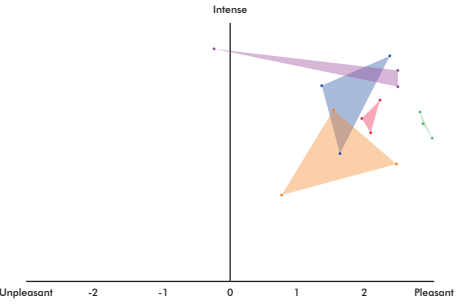
yellow

itchy handfeel

SAMPLE 5F  
AFFECTIVE LEVEL



Pleasant emotions: n=14/15  
Keywords: curiosity, attraction, respect



Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
It creates new details Pattern revealing Evolution Softness and luxurious feel The natural color	It changes completely color It lost original color Whitening How much the color faded The texture	Only some parts changes Uniqueness of color Change over time Depth in color The different shades	Yes, it fades and reveals details Yes, for upholstery Yes, for sofas Yes, it is vintage and luxurious Yes, it gives personality to the house	

SAMPLE 5F  
INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>unaged:</b> it looks fresh and colorful <b>dynamic:</b> difference in shading and texture <b>manufactured:</b> unique piece	<b>nostalgic/handcrafted:</b> It looks vintage, but still in a good and charming condition, reminds me of summer nights	<b>temporary:</b> I'm afraid it would loose its entire color by time	<b>cozy:</b> the garment makes me feel like there is a natural and cozy thing around me, that aged with me and got a specific quality that doesn't evoke dirtiness but novelty	<b>temporary:</b> it changes only some parts making it unique and it reveals some details so it's temporary like ourselves



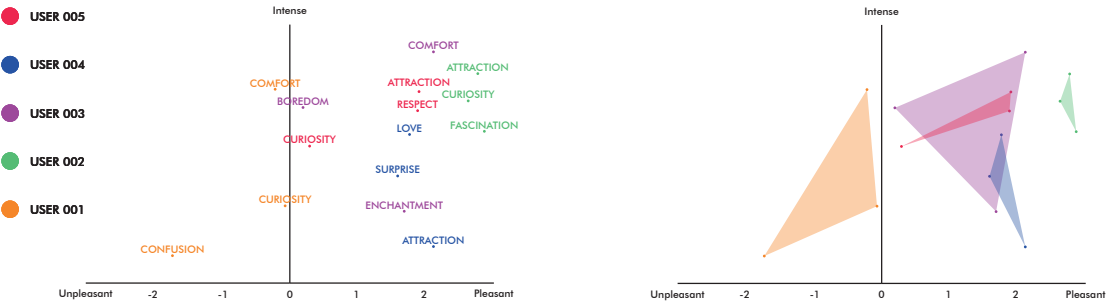
vintage

unique

summer nights



SAMPLE 5E  
AFFECTIVE LEVEL

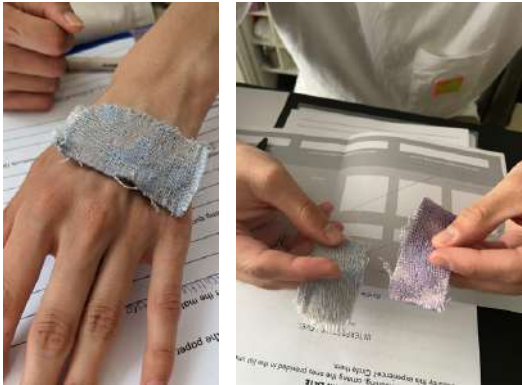


Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
It reveals details Raised difference in the pattern Comfort Construction and warp visibility Colours and pattern difference	It looses too much color Additional weight/thickness Rotten color look Dry handfeel The color changing sides	It changes competely color The amazing light blue shade Warp pattern Depth and difference in color Texture	Yes, due to fabric natural change Yes, but already transformed I see it on sweatsuits Yes, it would look nice and vintage Yes, it gives a cool look	It looks and feels very natural

SAMPLE 5E  
INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>unaged:</b> the colours and texture (soft) <b>fragile:</b> precious and expensive feels	<b>nostalgic:</b> it feels old and used, but still looks beautiful, would catch my eye in a vintage store	<b>futuristic:</b> motif and uneven disposition of warps	<b>cozy:</b> it is a welcoming colour code and really nice to see the gaps and color differences.	<b>natural:</b> it gives the perception of “natural” because it changes the color in a lighter way, revealing new details

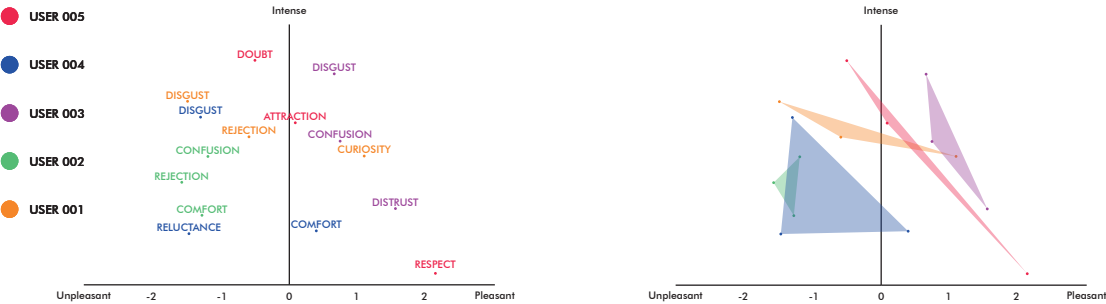


vintage

expensive feeling

welcoming color

SAMPLE 4A  
AFFECTIVE LEVEL



Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
It's lighter Soften texture and fabric / Different weave constructions Sturdiness and how reveals shapes with light	It seems dirty Dirty stains Dirtiness It looses the depth of the texture The stains	It takes a vintage look Dark grey areas It frays Natural and aged look The aged look	No No, it makes the house uncurated Yes, for outdoor activities No, but initial state looks luxurious No	Compared to the original, it feels softer and more flexible

SAMPLE 4A  
INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>aged:</b> the color and stains <b>handcrafted:</b> not perfect weaving	<b>aged:</b> you really feel that it has been used and has lived, because of the color change and staining	<b>strange:</b> its dirty look and it feels quite used and ruined	<b>aloof:</b> because the garments will not make me feel comfortable and clear, even more making me feel dirty and shamed	<b>aged:</b> you can see what the piece it's not raw, but it was exposed to something (e.g. time)

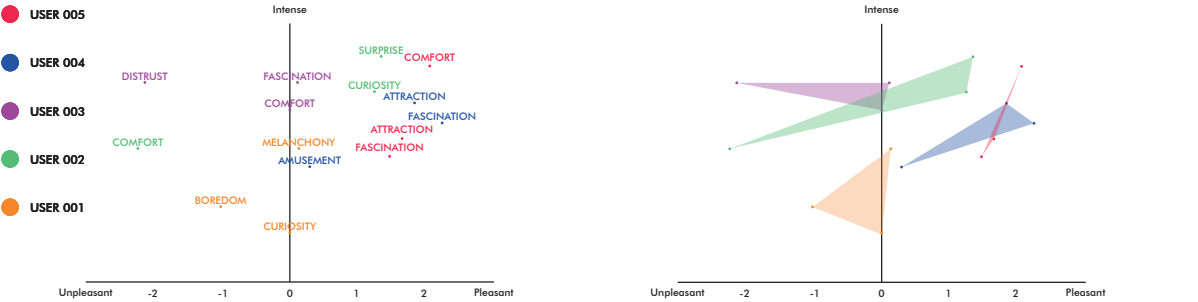


stains

used

dirty

SAMPLE 2F  
AFFECTIVE LEVEL



Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
The vintage look Natural vibe and color Toughness Texture and construction The feeling of the material when touched	Stiffness Stiffness Some yarn looks fragile It's super dry and color looks old The aging	It reveals hidden details Shapes of brown Coolness Handfeel Sturdiness and the natural aged color	Yes, on accessories Yes, it creates cozy and ecologic feeling Yes, as tape No, because of dryness No, it looks strange	

SAMPLE 2F  
INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>nostalgic:</b> the aged look of the sample <b>natural:</b> the color and sturdiness	<b>aloof:</b> it feels very dry and harsh on the skins. I wouldn't want to wear it. Also the color looks a bit dull	<b>durable:</b> for its raw and thick texture	<b>natural:</b> the colour is uniform, and it recalls the summer vibes and the natural aspect of fibres, like linen or raw straws, recalling a rural and natural environment	<b>hand-crafted:</b> the fact that all the components of the garment changes the color makes me feel like they want you to discover new details

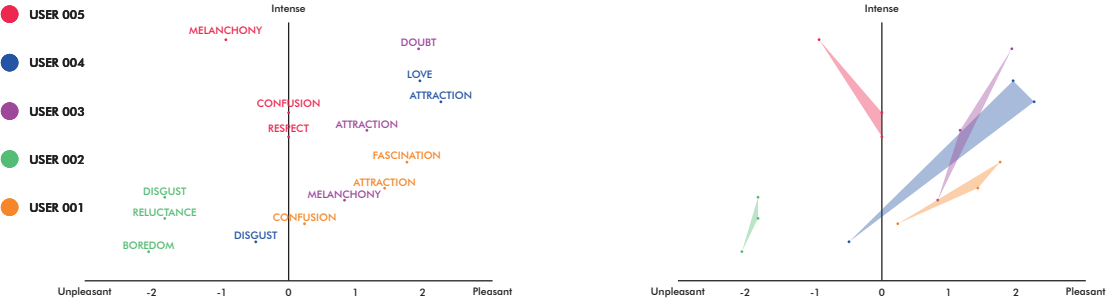


summer vibes

sturdiness

dry

SAMPLE 3G  
AFFECTIVE LEVEL

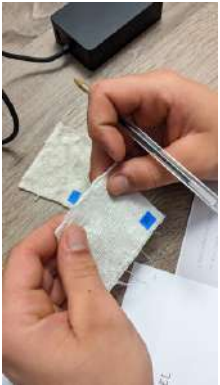


Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
Different fades Texture and color Softness Weave construction and slub effect The dotted texture	It looks dirty Dirty appearance Defibration Color and fragility The colour	It looks really aged Color consistency Weft expansion over time Softness, like bandage The aged but modern look	No, because of the very old look The dirtiness doubts its cleanliness Tea towel Yes Yes, with the dotted texture in a different color	Here the construction becomes more visible compared to the original, which adds value to the aged/used/lived feel

SAMPLE 3G  
INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>strange:</b> the color mixed with the dotted texture <b>permanent:</b> a change in the material	<b>aged:</b> it looks old, like it was found after a long time, it looks naturally stained	<b>hand-crafted:</b> its uneven and rustic touch	<b>natural:</b> I love the texture and the color, reminds me of summer vibes and of a garment I already have. It looks natural and light	<b>nostalgic:</b> because it seems like it was aged too much and it gives you the sensation that you want to go back in time

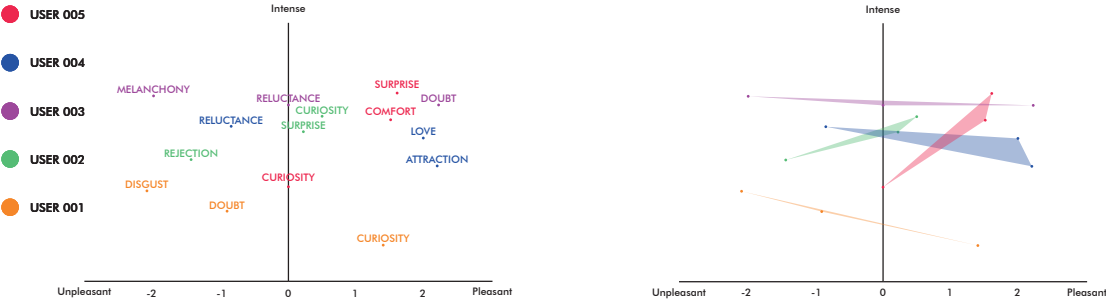


rustic

summer vibes

back to the past

SAMPLE 3B  
AFFECTIVE LEVEL



Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
Color homogeneity Silk is more shiny Familiarity Construction and composition The original aged colour and material	It looks dirty Dirty feeling Dirty looking stains Staining and loss of shine It looks dirty and used	It keeps the comfort Brilliance Nostalgia Softer and more flexible Mix of sturdiness and texture	No because of the aged look No because of the dirt Picnic bag No, it would look old No, it would make objects older	

SAMPLE 3B  
INTERPRETIVE LEVEL

User 001

**static:** due to the color  
**aged:** the brownness of the white

User 002

**aged:** the faded brown color makes it look old. The texture became more flat and overall it looks more dull

User 003

**nostalgic:** the motif combined with the palette reminds me of some old familiar clothes. Something that my grandma could have worn.

User 004

**aged:** the color of the fabric makes me think about a worn out and used garment with aged and color transformation due to not good care and human body interaction

User 005

**natural:** the aged effect seems natural and it is homogeneous on the garment



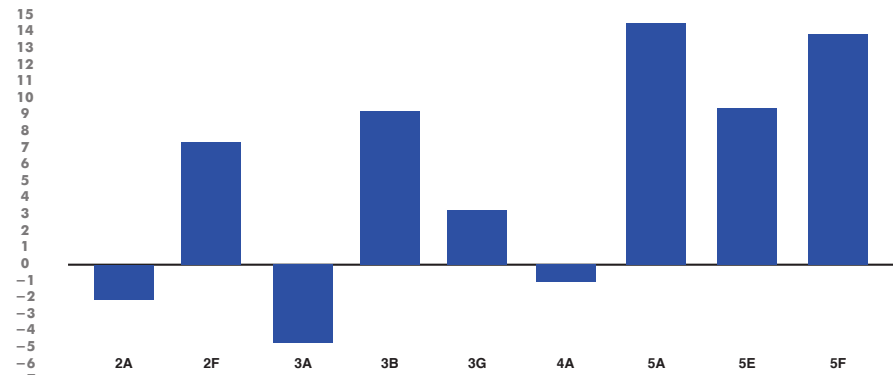
brown

dull

used before

AFFECTIVE LEVEL: RESULTS

Positive-negative barcharts with the average of the most pleasant samples



Coloring

Fading



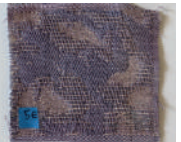
2F - twill (2), satin (2), twill (3)  
biocotton, ecru silk, cotton outdoor



3B - basket (2), satin(2), twill (3)  
biocotton, ecru silk, cotton burying



5A - basket (2), satin(2), twill (3)  
ecru hemp, ecru wool, cotton natural dyeing



5E - twill (2), satin (2), twill (3)  
ecru hemp, ecru wool, cotton natural dyeing

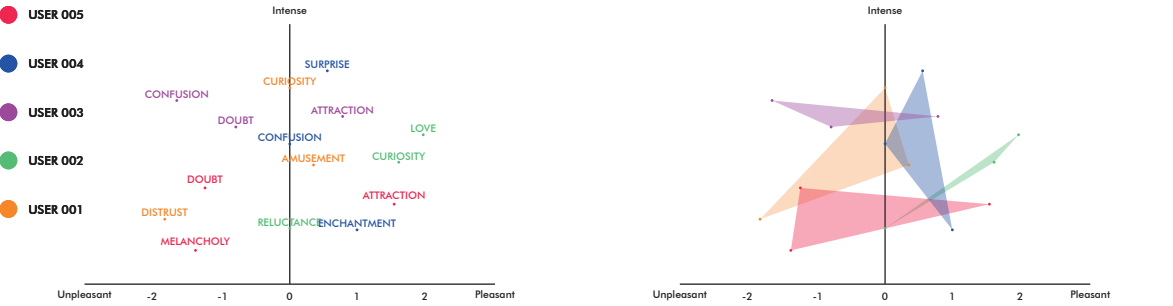


5F - twill (2), satin (2), twill (3)  
biocotton, ecru silk, cotton natural dyeing

INTERPRETIVE LEVEL: RESULTS

	USER 001	USER 002	USER 003	USER 004	USER 005	
2A	nostalgic / aged / static	aged	natural	static	durable	AGED / STATIC
2F	nostalgic / natural	aloof	durable	natural	hand-crafted	NATURAL
3A	aged / natural	aged	aged	aged	manufactured	AGED
3B	static / aged	aged	nostalgic	aged	natural	AGED
3G	strange / permanent	aged	hand-crafted	natural	nostalgic	
4A	aged / handcrafted	aged	strange	aloof	aged	AGED
5A	dynamic / futuristic	aloof	futuristic / dynamic	dynamic	dynamic	DYNAMIC
5E	unaged / fragile	nostalgic	futuristic	cozy	ntural	
5F	unaged / dynamic / manufactured	nostalgic / hand-crafted	temporary	cozy	temporary	TEMPORARY

SAMPLE 2I  
AFFECTIVE LEVEL



Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
The geometry	Sturdiness	Yellowness	Yes, on furniture	
Natural vibe and color	It's itchy	Natural ageing	No, it's too dry	
The yellow color	Stiffness	White exagons	Yes, for bags	
Different exagons	Dryness	Regular motif	No, because of dryness	
The see-through exagons	The handfeel	The color contrast	No, it looks too old	

SAMPLE 2I  
INTERPRETIVE LEVEL

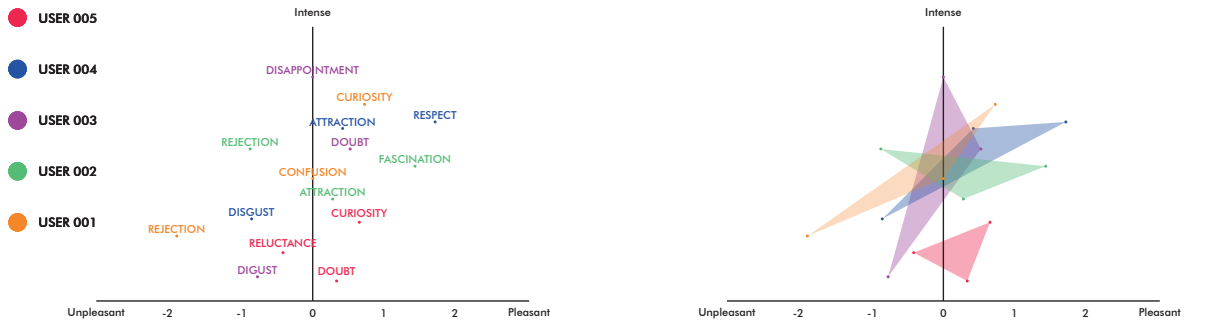
User 001	User 002	User 003	User 004	User 005
<b>aged:</b> the yellow color gives a nice aged effect	<b>nostalgic:</b> it reminds me of old linen fabrics	<b>static:</b> it looks like it can't evolve anymore	<b>hand-crafted:</b> the construction gives me this artisanal look	<b>nostalgic:</b> it reminds me of old fabrics often findable in grandparents' home

artisanal look

yellowness

natural

SAMPLE 3L  
AFFECTIVE LEVEL



Final reflections

MOST PLEASANT QUALITY	MOST DISTURBING QUALITY	MOST UNIQUE QUALITY	ACCESSORIES/ UPHOLSTERY	ADDITIONAL COMMENTS
Distribution of color	Dirtiness	Shininess	No	
Presence of silk	Stains	Sheen	Yes, for upholstery	
Durability	Dirty stains	Aged look	Yes, for tea towels	
Silk look	Used look	More durable	No, it looks used	
The unexpected look	Loss of brightness	Irregular color on a regular motif	Yes, for sofas	

SAMPLE 3L  
INTERPRETIVE LEVEL

User 001	User 002	User 003	User 004	User 005
<b>aloof:</b> it is durable, but also too sturdy	<b>natural:</b> the stains make it look naturally aged	<b>aged:</b> the fabric looks old but in a good way	<b>durable:</b> the handfeel transmits durability for long time	<b>natural:</b> it seems the fabric naturally aged over time, but in a natural way

stains

vintage feeling

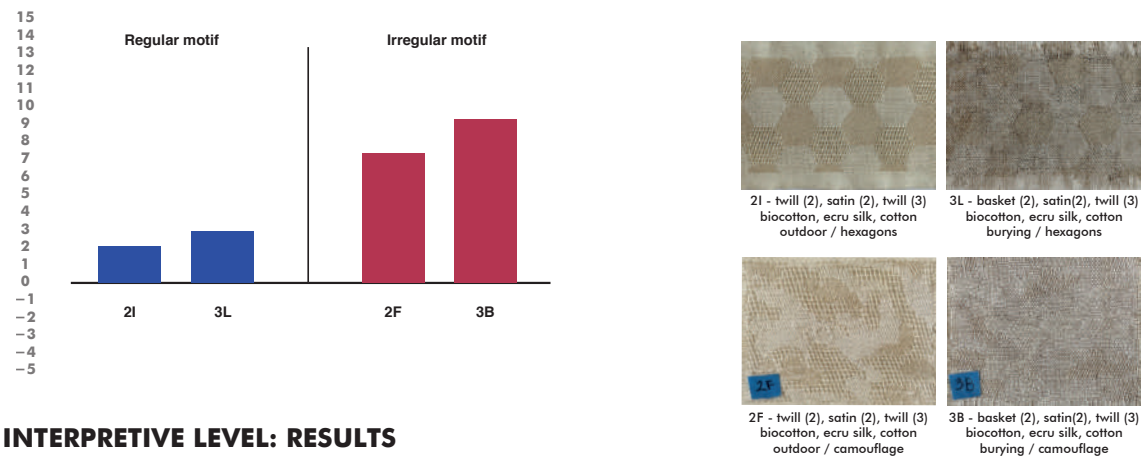
old



# Appendix G | long study template

## AFFECTIVE LEVEL: RESULTS

Positive-negative barcharts in comparison with irregular motif



## INTERPRETIVE LEVEL: RESULTS

	USER 001	USER 002	USER 003	USER 004	USER 005	
2I	aged	nostalgic	static	hand-crafted	nostalgic	NOSTALGIC
3L	aloof	natural	aged	durable	natural	NATURAL

## Daily fading bucket hat experience

Fill out this diary every day you wear the hat, whether it's once a day or multiple times throughout the day.

Your reflections will be fresher if recorded during or immediately after use.

There is also space provided for additional notes and comments.

- **It is recommended** to always clarify the timeframe of reference for a more accurate evaluation. The goal of this test is to measure how the user experiences the uniqueness of a garment that fades over time and if this experience arouses and increases positive emotions.

- **It is also recommended** to make some actions related to prolonged use of the garment that can accelerate changes, for example **washing the hat, hanging out in the sun...**

At the end of the experience, please submit the form to the study coordinator.

*\* Indica una domanda obbligatoria*

1. Participant's name \*

2. 1) Date and time of wearing the hat: \*

3. 2) Describe your activities while wearing the hat (washing, sun-drying, etc...) \*

4. 3) Reflections on the daily hat-wearing experience: \*

5. Add any additional notes or comments regarding the hat's use:

Questi contenuti non sono creati né avallati da Google.

Google Moduli

## Weekly fading bucket hat experience

Fill out this form at the end of every week.  
Your reflections will be fresher if recorded during or immediately after use.  
There is also space provided for additional notes and comments.

- **It is recommended** to always clarify the timeframe of reference for a more accurate evaluation. The goal of this test is to measure how the user experiences the uniqueness of a garment that fades over time and if this experience arouses and increases positive emotions.
- **It is also recommended** to make some actions related to prolonged use of the garment that can accelerate changes, for example **washing the hat, hanging out in the sun...**

Lastly, participants are asked to take photos of the hat every week to observe how it changes over time.  
At the end of the experience, please submit the completed form and hat photos to the study coordinator.

\* Indica una domanda obbligatoria

1. Participant's name \*

2. 1) On a scale of 1 to 5, rate the extent of color fading you have observed in the hat during the week: \*

Contrassegna solo un ovale.

No fading

1

2

3

4

5

Significant fading

3. 2) Write down the emotions, among those mentioned below, you experienced while wearing the hat: \*

negative emotions			positive emotions	
ANGER	INDIGNATION	RESENTMENT	AMUSEMENT	SCHADENFREUDE
ANNOYANCE	DISSATISFACTION	FRUSTRATION	SENSORY PLEASURE	SERENITY
CONTEMPT	HATE	DISGUST	RELIEF	SATISFACTION
BOREDOM	RELUCTANCE	SADNESS	EUPHORIA	HAPPY-FOR
DISAPPOINTMENT	PITY	LONELINESS	LUST	AFFECTION
REJECTION	HUMILIATION	LONGING	TENDERNESS	ELEVATION
ENVY	JEALOUSY	GUILT	GRATITUDE	WORSHIP
REGRET	SHAME	EMBARRASSMENT	ADMIRATION	MOVED
FEAR	STARTLE	WORRY	PRIDE	DETERMINATION
ANXIETY	DISTRUST	DOUBT	FASCINATION	POSITIVE SURPRISE
NERVOUSNESS	INSECURITY	DISTRESS	INSPIRATION	AWE
DESPERATION	CONFUSION	SHOCK	EXCITEMENT	HOPE

# Appendix H | long. study form

4. 3) On a scale of 1 to 5, rate the affective level experienced throughout the week:

*Contrassegna solo un ovale.*

Negative affective level

1 ☐

2 ☐

3 ☐

4 ☐

5 ☐

Very positive affective level

5. Add any additional comments or notes regarding the hat-wearing experience:

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---

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6. Upload photo/s of the bucket hat: \*

File inviati:

Participant ID: .....

## Dynamic textile patterns for color change in jacquard textiles over time

This research is conducted as part of the MSc study Industrial Design Engineering at TU Delft.

Students: Giovanni Cimino  
Contact person: Giovanni Cimino

## Informed consent participant

I participate in this research voluntarily.

I acknowledge that I received sufficient information and explanation about the research and that all my questions have been answered satisfactorily. I was given sufficient time to consent my participation. I can ask questions for further clarification at any moment during the research.

I am aware that this research consists of the following activities:

1. Conduct a longitudinal wear test

I am aware that data will be collected during the research, such as notes, photos, video and/or audio recordings. I give permission for collecting this data and for making photos, audio and/or video recordings during the research. Data will be processed and analysed anonymously (without your name or other identifiable information). The data will only be accessible to the research team and their TU Delft supervisors.

The photos, video and/or audio recordings will be used to support analysis of the collected data. The video recordings and photos can also be used to illustrate research findings in publications and presentations about the project.

I give permission for using photos and/or video recordings of my participation:  
(select what applies for you)

- ☐ in which I am recognisable in publications and presentations about the project.  
☐ in which I am not recognisable in publications and presentations about the project.  
☐ for data analysis only and not for publications and presentations about the project.

I give permission to store the data for a maximum of 5 years after completion of this research and using it for educational and research purposes.

I acknowledge that no financial compensation will be provided for my participation in this research.

With my signature I acknowledge that I have read the provided information about the research and understand the nature of my participation. I understand that I am free to withdraw and stop participation in the research at any given time. I understand that I am not obliged to answer questions which I prefer not to answer and I can indicate this to the research team.

The researchers take the COVID-19 measures into account. I confirm to respect the COVID-19 measures taken and will follow instruction about these provided by the researchers.

I will receive a copy of this consent form.

\_\_\_\_\_  
Last name

\_\_\_\_\_  
First name

\_\_\_ / \_\_\_ / 2023

Date (dd/mm/yyyy)

\_\_\_\_\_  
Signature

Questi contenuti non sono creati né avallati da Google.

Google Moduli



# Appendix I | long. study data

1) Date and time of wearing the hat:	2) Describe your activities while wearing the hat (washing, sun-drying, etc...)	3) Reflections on the daily hat-wearing experience:	Add any additional notes or comments regarding the hat's use:
17/7 7-9	Cleaning, cooking, eating, sitting in the sun	Sits nicely when moving about, personally really enjoy the weight	
19/07/2023	Sitting in the sun	Kept me shaded, breathable but effective	The colours are incredible in the sun
21/07 7-9	Eating dinner sitting in the sun. Washing the hat.	Was a bit colder but kept my head warm, effective in all conditions. No notice in colour difference	
29/7/23 10-12am	Chilling, cooking, getting ready for the day ahead	Comfortable and snug. Since washing there are some looser threads and wrinkles	
30/7/23 4:30-6:30	Sitting outside on the terrace with the family, had some drinks and snacks	One side of the hat is a lighter shade than the other. Video taken today to see progress. Pilling a bit but no worsening. Still comfortable.	
2/8/23 3-6	Working, eating, chores	Easy going, comfy think even helped me focus.	
6/8/23 5pm - 9pm	Cooking, watching a film. Washing the hat	Comfortable and relaxing. No greater sign of wear or colour fading	
10/8/23 8:30-10:30 pm	Cooking, eating, enjoying the sunset, met my flatmates friends	The usual ease of the hat, cosy and function. Bit more lose threads	
11/8/23 1-5pm	Working from home, cooking, eating, washing, cleaning. Washing the hat.	The hat didn't hinder me at all when I was going around me day to day	

1) Date and time of wearing the hat:	2) Describe your activities while wearing the hat (washing, sun-drying, etc...)	3) Reflections on the daily hat-wearing experience:	Add any additional notes or comments regarding the hat's use:
25/7 3-7	Walking at the park with friends, cycling	The hat looks light and vibrant in the sun. Breathable.	
28/7 10-12/18-21	grilling on the balcony, chatting with friends and rin	The hat is breathable. The fabric seems acquiring more color in the sun.	
3/8 2-7	Hanging out, laying in the sun at the park	The hat faded a lot after the first wash but it's still vibrant	
5/8 6-8	Walking outside, doing groceries, and rinsing the ha	The hat looks more elegant now	
8/8 11-13	Doing groceries, cycling, having lunch outside	Friends noticed the color changing and asked me if something is wrong. The were positively surprised when find out about the fading	The fading isn't homogeneous
10/8 2-3 7-8	Chilling on a friend's rooftop and rinsing the hat	The hat gives me serenity. It doesn't fade that much anymore but it is still fading	
12/08 4-8	Helping a friend moving, going to the beach.	The weather was a bit cloudy, the hat overall should look flat now faded but the camo still gives tone	
17/8 4-8	Going to a museum and rinsing the hat	The bucket hat starts to be whitish, looks the sun let it faded more	