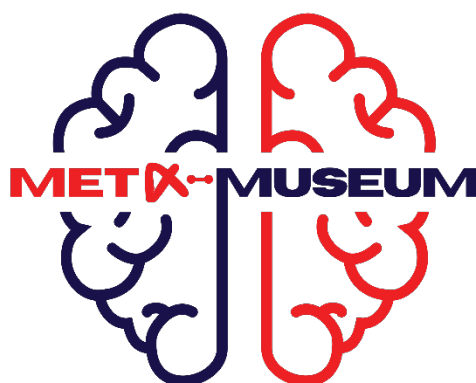




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META-MUSEUM

*Moving **E**motions towards confidence in the **T**ransformative
Appropriation for a **M**eaningful **U**nderstanding of cultural
heritage: a neuro**S**cientific approach to **E**uropean **M**useums*

DELIVERABLE D5.1

TITLE Protocol for the assessment of confidence

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Authors: Dr. Nadia Dominici, Dr. John Stins, Dr. Marco Iosa

DISSEMINATION LEVEL PU - Public SEN - Sensitive

TYPE R - document, report DMP - Data Management Plan
 DATA - Data sets, microdata, etc DEM - Demonstrator, prototype
 OTHER

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DELIVERABLE REVIEW HISTORY

VERSION	DATE	DETAILS
DEL_5.1	08 Nov. 2024	1 st draft submission
DEL_5.1_REV	21 Nov. 2024	1 st review
DEL_5.1	28 Nov. 2024	Final version

LIST OF ABBREVIATIONS

ACRONYM	DESCRIPTION
EEG	Electroencephalography
PANAS	Positive Affect and Negative Affect scale
GSR	Galvanic Skin Response
AFz, AF3, AF4, AF7, AF8, Pz, P3, and P4	AFz : Anterior Frontal midline electrode AF3 : Anterior Frontal electrode 3 (left hemisphere) AF4 : Anterior Frontal electrode 4 (right hemisphere) AF7 : Anterior Frontal electrode 7 (left hemisphere) AF8 : Anterior Frontal electrode 8 (right hemisphere) Pz : Parietal midline electrode P3 : Parietal electrode 3 (left hemisphere) P4 : Parietal electrode 4 (right hemisphere)
Hz	Herz
GFP	Global Field Power
IAF	Individual Alpha Frequency
EDA	Electrodermal activity
SCL	Skin Conductance Level
COP	centre of pressure
AP	Antero-Posterior position
CH	Cultural Heritage

RELATED DOCUMENTS

Related Documents	Location
DEL_5.1.doc	MS Teams location WP5/D5.1/02_DRAFT
DEL_5.1_REV.doc	MS Teams location WP5/D5.1/03_UNDER REVIEW
DEL_5.1.doc	MS Teams location WP5/D5.1/04_FINAL

FRAMEWORK

1.1. Reference to WP and tasks as described in the DoA

WP5: Laboratory based investigations; Task: T5.1 Definition of Psychometric and Physiological Quantitative Assessment of Well-being and Confidence (It is the Milestone 1' means of verification; Milestone Name: Confidence and wellbeing assessment protocol)

1.2. WP5 and task T5.1 objectives:

Identify the protocol for the assessment of confidence and wellbeing useful throughout the entire project, based on valid and reliable psychometric scales and physiological indices. Physiological measures will be performed combining an EEG portable headset and bracelets measuring heart rate, temperature, and electrodermal activity, for assessing the neurometrics, i. e. indices related to cognitive workload, attention and emotional engagement.

1.3. Linked tasks

T4.1: Design Brief Scoping

T4.2: Digital prototypes

T5.3: Experiments on emotional reactions

T6.3: Status quo measurements implementation

T6.6: P1 implementation

T7.1: Adaptation of Psychometric and Neurophysiological assessment to clinical settings

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1. Introduction

Human movements are generated by muscle forces, yet these movements are inextricably linked to a brain that senses, feels, and transforms. As the field of human movement analysis undergoes rapid evolution, groundbreaking insights reveal that private (subjective) states can be objectively inferred from the spatio-temporal dynamics of human motion. Several studies (Lelard et al., 2019; Stins et al. 2022) demonstrated that pleasant versus unpleasant visual stimuli evoke automatic approach-avoidance reactions, observable through changes in body posture. Similarly, in the field of experimental aesthetics, Ganczarek et al. (2015) found that eye movements and body sway are sensitive to the viewing of seventeenth-century Dutch paintings, illustrating how art interacts with the human sensory-motor system.

Such reactions are integral to the full emotional experience as they are (a) objectively measurable in spatiotemporal body signatures, (b) beyond conscious control, and (c) grounded in robust theoretical and empirical frameworks. Approach-avoidance reactions are not only associated with valence (hedonic value) but also with curiosity, or the desire to explore and engage in transformative experiences. These postural variables form a cornerstone of the META-MUSEUM project, where movement data is supplemented by neurophysiological and subjective metrics to create a holistic understanding of human responses in meaningful experiential contexts like museum visits.

To support this effort, a specific task has been defined: the **Definition of Psychometric and Physiological Quantitative Assessment of Well-being and Confidence**. This task aims to establish a standardised protocol for assessing confidence and well-being across the project, utilising validated psychometric scales along with physiological indices. Physiological data will be gathered using a portable Electroencephalography (EEG) headset and biometric bracelets that measure heart rate, skin temperature, and electrodermal activity. Together, these devices will capture neurometrics related to cognitive workload, attention, and emotional engagement, enabling a comprehensive assessment of subjective well-being and confidence.

In sum, this multi-modal approach—integrating movement, physiological, psychometric data, and questionnaires—will provide a comprehensive framework to quantify well-being and confidence. This will offer a richer understanding of human emotional and cognitive states within dynamic, interactive environments, enhancing our insights into how people engage with and respond to cultural stimuli in spaces like museums.

2. Overview

A. Confidence

From a neuro-psychological perspective, defining and measuring confidence is essential. Confidence is a complex psychological construct that encompasses more than just a disposition or cognitive belief. It includes metacognitive aspects, personality traits (e.g., openness), learned knowledge, developed skills, and additional psychological factors like self-esteem, intellectual engagement, and emotional intelligence (Davies et al, 1998). People with high confidence are often seen as decisive, firm, and resolute, while those with lower confidence may be indecisive, doubtful, and uncertain about their decisions and abilities (Stankov & Lee, 2008). Confidence is also intertwined with cultural background and can vary significantly based on cultural heritage (Lichtenstein & Fischhoff, 1977; Stankov & Lee, 2008).

Another important aspect is that the cultural and societal transformation are strictly intertwined with personal changes, and it can affect confidence. As Keller and colleagues reported in 2011: *“a key characteristic of confidence in modern society is its rapid transformation. In addition to changes that benefit people, this transformation also brings with it new and diverse threats (...), risks that are important sources of uncertainty for people. Although the issue of how people cope with the uncertainty that is caused by rapid transformation is critically important to individuals for leading their lives and maintaining mental health, there has been little research in this area to date.”*

These authors have developed a scale to measure general confidence and to investigate general confidence as a psychological buffer for coping with this uncertainty. Because the aim of META-MUSEUM is to assess how the appropriation of cultural heritage may increase confidence, the General Confidence Scale that they proposed (Keller et al., 2011) is a perfect candidate to be used in this project. This scale refers to the confidence in the future with regard to the characteristics of actual society but can be easily adapted to assess also the confidence in actual society with regard to the characteristics of past societies and their cultural heritage.

B. Wellbeing

Scientific literature reports as wellbeing is a complex construct, formed by many different domains. Eudaimonic wellbeing focuses on living a meaningful and purposeful life, often arising from specific experiences related to personal growth, self-actualization, and fulfilling one's potential. It emphasizes the significance of experiences that contribute to one's sense of purpose and personal development (Ryff & Singer, 2008). Transcendent well-being relates to experiences that provide a sense of connection to something greater than oneself, such as spirituality, nature, or profound personal relationships. These experiences can significantly enhance feelings of wellbeing and fulfilment (Wong, 2011). Affective well-being relates to the emotional experiences individuals have, encompassing positive emotions (like joy and contentment) and negative emotions (like sadness and anxiety). The balance of these emotions in specific experiences can significantly influence overall wellbeing (Diener & Ryan, 2009).

In META-MUSEUM, we are particularly interested in Experiential wellbeing that refers to the positive feelings and satisfaction derived from specific experiences, activities, or moments. This type of well-being emphasizes the importance of experiences, such as leisure activities, travels or personal achievements, in enhancing overall life satisfaction (Csikszentmihalyi, 1990). Accordingly, the General Wellbeing Questionnaire (Thomson & Chatterjee, 2014) will be used to assess participants' experiences. The full version of the scale consists of 12 items, rated based on the extent of agreement with each statement, from 1 (None of the time) to 5 (All of the time). Among the items, the scale assesses confidence and health, which are key aspects for the present project (Figure 1).

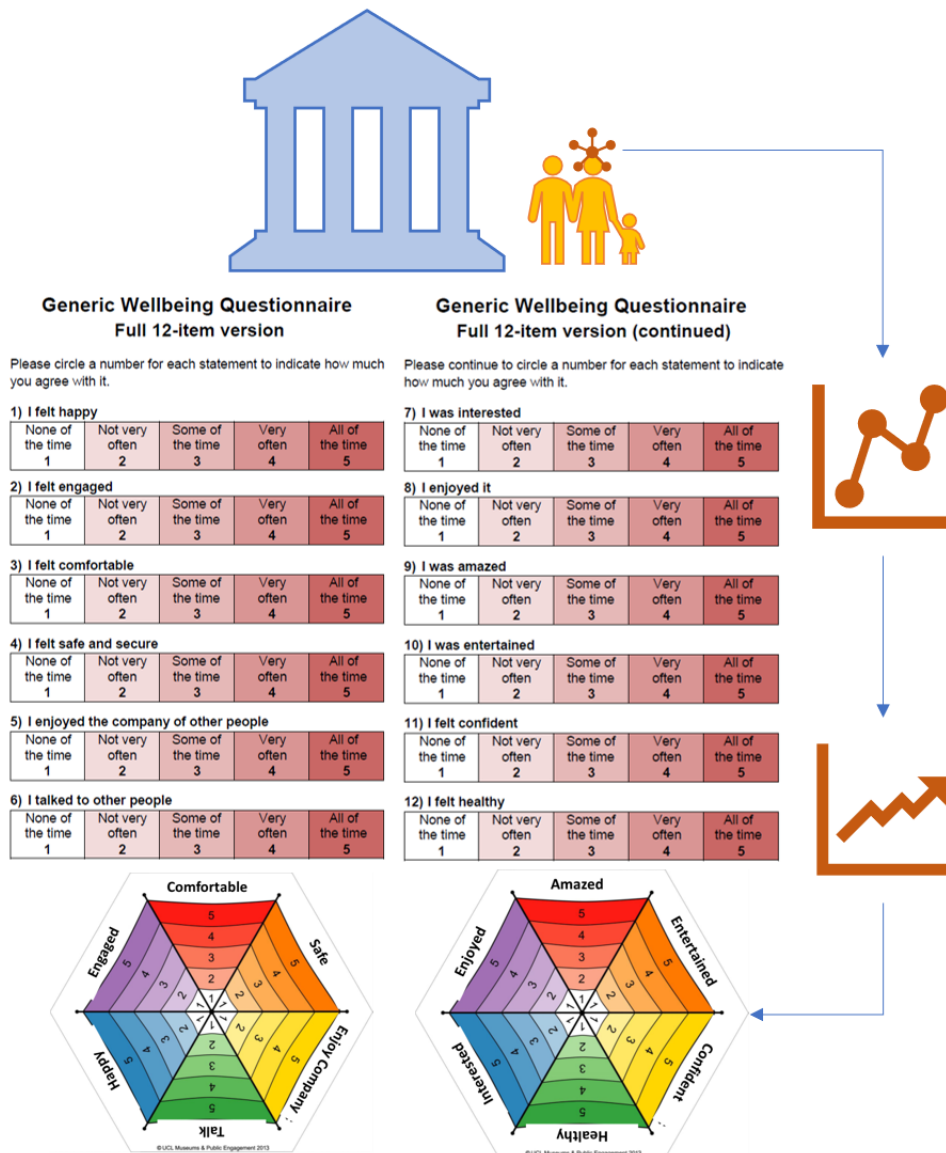


Figure 1. The Generic Wellbeing Questionnaire (full 12-item version; Thomson & Chatterjee, 2014), and possible correlations with electrophysiological measurements.

C. Affective state

To assess how cultural heritage may influence positive and negative effects (that are two dominant and relatively independent dimensions) the Positive Affect and Negative Affect scale (PANAS) can be used. Among different mood scales developed to measure these factors, PANAS shows a good level of validity and reliability (Watson et al., 1988). It consists of two 10-item mood scales that comprise the Positive and Negative Affect assessment. It includes an assessment of these domains in terms of trait and in terms of a state that can be influenced by the aesthetic experience.

D. Aesthetic experience

Current scientific literature lacks a robust, psychometrically validated scale for assessing aesthetic experience, specifically in terms of beauty perception, that can differentiate between subjective, personal beauty and an objective, culturally influenced concept of beauty. Although various methods, such as Numeric Rating Scales or Visual Analogue

Scales, have been proposed to address specific questions regarding the perception of beauty and aesthetic attractiveness (Iosa et al., 2022), there remains a need for a reliable, validated instrument. Therefore, as part of WP5, we aim to develop and validate a comprehensive scale for aesthetic judgement, which could subsequently be applied in WP6 and WP7.

3. Methods

3.1 Neurometrics Acquisition and Processing

Following a review of the scientific literature and an analysis of the market for wearable electroencephalographic headsets and devices for measuring electrodermal and cardiac activity, the Mindtooth Touch (developed through the H2020 Fast-track-to-Innovation project) and the Shimmer3+GSR emerged as the best choices for Meta-Museum. This selection was based on their technical characteristics, as detailed in the following paragraphs. An example of the experimental setup is shown in Figure 2.



Figure 2. Example of the experimental set up.

Equipment:

- EEG data will be acquired using a Mindtooth Touch EEG headset with water electrodes (saltwater sponge and passive Ag/AgCl electrodes) ([Mindtooth](#)) (Sciaraffa et al., 2022). This headset, used for assessing psychophysiological variables such as stress, will be positioned according to the International 10-10 System at the following locations: AFz, AF3, AF4, AF7, AF8, Pz, P3, and P4 (Oostenveld and P. Praamstra, 2001).

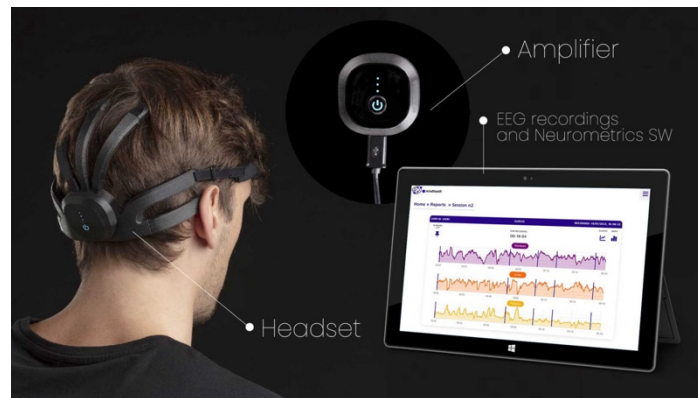


Figure 3. Close-up view of the Mindtooth Touch EEG headset device used for recording EEG data (Source: <https://www.mindtooth.com/>)

Data Analysis:

- The EEG signal will be band-pass filtered using a fifth-order Butterworth filter with a frequency range of 2–30 Hz.
- Blink artefacts will be identified using the Reblinca method (Di Flumeri et al., 2016).
- The reconstructed EEG signal will be segmented into 1-second epochs with 0.5-second overlap to mitigate boundary effects. Additional artefact detection criteria, based on signal amplitude and trend (Delorme and Makeig, 2004; Vozzi et al., 2021), will be applied to exclude segments still affected by artefacts.
- **Frequency Band Analysis:** Global Field Power (GFP) will be computed for the alpha and theta frequency bands. The alpha band will be defined as [IAF-2, IAF+2] and the theta band as [IAF-6, IAF-2], where Individual Alpha Frequency (IAF) will be estimated from one minute of eyes-closed data recorded before the experiment (Klimesch 1999).

Variables

Approach-Withdrawal index:

This index will be extracted from the Frontal Alpha Asymmetry and calculated using the formula:

$$GFP_{aright/n} - GFP_{aleft/m}$$

where GFP_{aright} and GFP_{aleft} represents the GFP values calculated among right (AF4, AF8) and left (AF3, AF7) electrodes, respectively, in the alpha band, and where n is the number of frontal right electrodes and m is the number of frontal left electrodes.

Positive values indicate an approach/interest tendency, while negative values suggest a withdrawal tendency (Davidson et al., 1990; Cartocci et al., 2018).

Cognitive Effort Index:

Derived from the GFP in the theta band over all the frontal electrodes (AFz, AF3, AF4, AF7, AF8). Increased theta values are indicative of higher cognitive effort (Cartocci et al., 2021; Wisniewski et al., 2015).

3.2 Physiological signals Acquisition and Processing

Galvanic Skin Response (GSR)

Equipment:

- Electrodermal activity (EDA) will be recorded with a Shimmer 3 GSR+ device (Shimmer Sensing, Ireland) with a sampling rate of 64 Hz, applied to the nondominant hand of the subject. The constant voltage method (0.5 V) will be used for GSR acquisition. Electrodes will be placed on the palmar side of the middle phalanges of the second finger of the nondominant hand, following established procedures (Boucsein et al., 2012).



Figure 4. Close-up view of the Shimmer 3 GSR+ device used for recording Electrodermal Activity (EDA) (Source: <https://shimmersensing.com/>).

Variable

Skin Conductance Level (SCL) Estimation:

The tonic component of the EDA signal, known as Skin Conductance Level (SCL), will be estimated using LEDAlab software (Benedek and Kaernbach 2010). SCL represents the slow-changing component of the EDA signal and is related to arousal and stress levels (Ronca et al., 2023).

Postural Indices

Equipment:

- A force plate measuring forces at 100Hz. From the forces the centre of pressure (COP) can be derived, which is related to the overall position (e.g., displacement, lean, direction) of the body (Figure 5).

**force plate: center of pressure,
a.k.a. body sway**

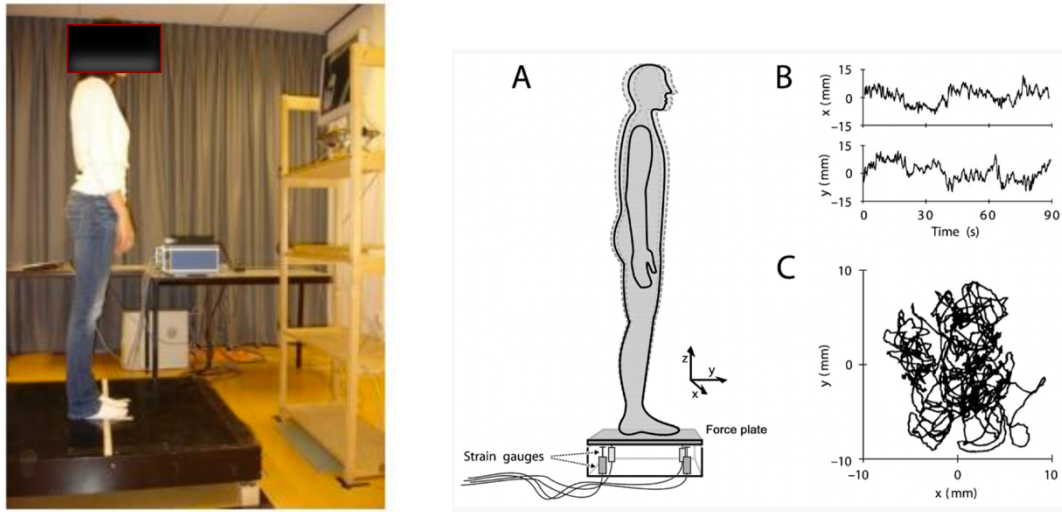


Figure 5. Experimental Setting: The figure shows an example of the lab setting; in this example a subject is standing quietly on a force plate (black bow) while looking at a visual stimulus; in this case a snake. To the right we see example COP profiles, which we analyse using time-series methods. In the actual experiment many parameters need to be set, such as the size of the display; the distance between subject and display; the type of visual stimuli; their duration, the instructions, etc.

Variable:

Emotional Estimation:

Indices: the literature and the work performed at the VU Amsterdam (Lelard et al., 2018; Stins et al. 2022; Stins and Beek, 2007) has identified several markers in the COP analysis that are related to emotion, attention, cognitive workload, etc. An important marker is sway variability; there is evidence that situations that are highly attentional captivating lead to a (temporary) reduction in sway variability. This is sometimes called postural ‘freeze’ and related to awareness of the environment. Another marker is the mean position of the COP in the anterior-posterior direction. There is evidence that unpleasant items lead to a small spontaneous (unconscious) backward lean. This is objectively visible in the mean Antero-Posterior (AP)-position during a time interval (e.g., stimulus exposure). The converse pattern, i.e., spontaneous ‘approach’ (forward lean) is less robust in literature (Stins and Beek, 2007).

Stimuli

As outlined in the project, the stimuli will consist of visual and audio cultural items developed in WP4. These items will be pre-selected and scored to represent the extremes of the emotional spectrum.

4. Conclusions:

To summarize; this protocol attempts to assess neuro/ cognitive and affective states using various converging methods. Importantly, all measures are rooted in theory, and are now applied in this new setting related to Cultural Heritage (CH). We made a distinction between psychometric scales, involving self-report, and neurometric / physiological indices. For ease of exposure, we present the main measures here again in the tabular form below.

Table 1: Psychometric Scales

Domains	Confidence	Wellbeing	Affective Scale	Aesthetic Attractiveness
Scales	General Confidence Scale (Annex 1)	Wellbeing Questionnaire (Annex 2)	Positive and Negative Affective Scale (PANAS) (Annex 3)	To be developed and validated
References	Keller et al., 2011	Thomson & Chatterjee, 2014	Watson et al., 1988; Crawford, 2004	To be published

Table2: Neurometric and Physiological Indices

	Approach-Withdrawal Index (AW)	Cognitive Effort Index (CI)	Skin Conductance Level (SCL)	Postural responses
Indicators	Neural activity related to goal-oriented emotions, focusing on overt actions and judgments about the stimuli.	Represents the mental resources used to complete a task.	Measures the degree of emotional arousal during the experience.	Postural activity related to attentional and / or emotional state.
Device	EEG	EEG	GSR	Force plate (COP)

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6. Annexes

Annex 1

GENERAL CONFIDENCE SCALE (extracted by the original paper of Keller et al., 2011)

Assess the agreement with the following sentences from 1 (no agreement at all) to 6 (absolute agreement). The scale is based on a 6-point Likert-type scale

Item	S
1. In the future, society will be functioning as well as today.	
2. Our society is well equipped to solve future problems.	
3. The future safety and security of our population is assured.	
4. Our society has a bright future.	
5. Nowadays, things seem to be getting more and more out of control. (R)	
6. Altogether, we live in a safe and secure time.	

Annex 2

Generic Wellbeing Questionnaire (Thomson & Chatterjee, 2014)

Generic Wellbeing Questionnaire Full 12-item version	Generic Wellbeing Questionnaire Full 12-item version (continued)										
Please circle a number for each statement to indicate how much you agree with it.	Please continue to circle a number for each statement to indicate how much you agree with it.										
1) I felt happy <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5	7) I was interested <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
2) I felt engaged <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5	8) I enjoyed it <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
3) I felt comfortable <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5	9) I was amazed <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
4) I felt safe and secure <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5	10) I was entertained <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
5) I enjoyed the company of other people <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5	11) I felt confident <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
6) I talked to other people <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5	12) I felt healthy <table border="1" style="width: 100%; text-align: center;"> <tr> <td>None of the time 1</td> <td>Not very often 2</td> <td>Some of the time 3</td> <td>Very often 4</td> <td>All of the time 5</td> </tr> </table>	None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							
None of the time 1	Not very often 2	Some of the time 3	Very often 4	All of the time 5							

Annex 3

PANAS (extracted from the page of The Ohio State University)

Positive and Negative Affect Schedule (PANAS-SF)

Indicate the extent you have felt this way over the past week.		Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
PANAS 1	Interested	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 2	Distressed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 3	Excited	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 4	Upset	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 5	Strong	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 6	Guilty	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 7	Scared	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 8	Hostile	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 9	Enthusiastic	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 10	Proud	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 11	Irritable	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 12	Alert	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 13	Ashamed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 14	Inspired	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 15	Nervous	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 16	Determined	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 17	Attentive	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 18	Jittery	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 19	Active	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 20	Afraid	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5