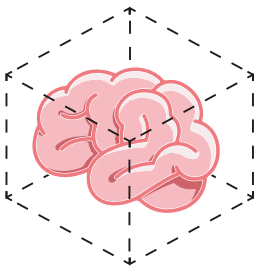
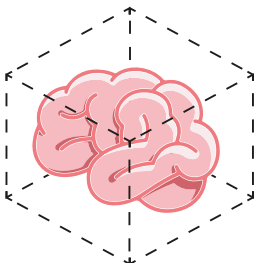
space for the brain



ruimte voor het brein

ground for focus and creativity for every brain
graduation research explorer lab
lauren broshuis
october 2019

space for the brain



ruimte voor het brein

TU Delft– october 2019
research tutor: Machiel van Dorst
design tutor: Roel van de Pas
building technology tutor: Hubert van der Meel

table of content

introduction

fascination

Psychology and the functioning of the human mind has always been something that got my interest. It is fascinating that we as humans consider our brain as 'who we are', but we still do not know how this big grey matter inside our head is operating exactly.

The unlucky event of me getting a brain injury, caused by a clumsy bike accident, influenced my perception of the environment. Considering my increased sensibility to lights, sounds and crowds, I started to perceive architecture and the built environment differently. This experience aroused my interest in the human brain even more, and especially its relation with our environment and the perception of it.

> *"Buildings are encounters between physical structures and the experience though multi-sensory perception. Users become ingredients and measures of the experience itself"*
>
> – J. Pallasmaa

The perception of the physical world around us has been (and still is) a subject of interest of many researchers and psychologists. In general, perception can be defined as the process by which an individual selects, organises and interprets stimuli into a meaningful and coherent picture of the environment. This means that the environment is not only created by the physical elements one perceives, but also by the interaction between this built environment and the human brain. An individual selects their own stimuli; therefore, the perception of space can be different for one compared to the other.

I started to realise that the relation between this built environment and the individual perception of it has been undervalued in the architectural profession. Bridging the gap between architecture and the perception of the human mind means creating spaces that answer the needs of various users more closely.

problem statement

Overstimulation is a common problem in our contemporary society. In today's daily routines, we are exposed to an enormous quantity of stimuli around us. We can think of sensory stimuli such as lights, noise and overcrowded areas, but also other elements as constantly changing work tasks and agendas, increasing workloads and social expectations of 'always being online' regarding e-mail and social media. According to U.S. scientific research in 2012, our brain is loaded daily with 34 gigabytes of information. Through mobile phones, the Internet, electronic mail, television, radio, newspapers, books and social media, people receive about 23 words a second during awake hours (Bohn, 2012). This number is probably even bigger today.

We can all relate to the experience of wanting to shut these stimuli off, as our brain is overwhelmed and overstimulated by it all. Our surrounding environments can be improved if architects and designers learn more about how multi-sensory stimuli can enrich our perception of space, and when these triggers can take a back seat. Hence, we should strive for a well-balanced design regarding sensory stimuli, instead of creating overwhelming environments that are unnecessarily stressing ourselves.

Another concerning trend in the design of contemporary work environments is the impact of the 'open workspace'. To increase workplace collaboration, traditional office spaces transformed into 'open', transparency-enhancing architectural compositions. In a world where the practice of working is changing to more interactive and collaborative modes of operating, spatial boundaries (as walls and doors) were seen as barriers to this interaction. Subsequently, these spatial borders within offices were often being removed, to stimulate greater collaboration and collective intelligence.

rise of the open-office trend in the 1980's

However, research showed, contrary to common belief, that the volume of face-to-face interaction decreased with 70% after examining the effect of removing spatial boundaries by transitioning to more open office spaces (Bernstein & Turban, 2018). It is evident that these 'open workspaces' are very distracting and overwhelming, caused by chatty co-workers, computer and machinery noises, phone call conversations, etcetera. Various articles underwrite this sceptic point of view towards the open office trend (McGregor, 2018; Kaufman, 2014; Westfall, 2018; Giacobbe, 2015; Singh, 2017; Tank, 2019; Rampton, 2017).

Like I mentioned before, the perception of space is personal. In this way, one person can handle more environmental stimuli compared to the other, and therefore also has different preferences regarding their surrounding environment. It is generally known that people that are hypersensitive, autistic or brain injured can process less environmental stimuli, because their brains are having a harder time filtering these stimuli. Accordingly, overstimulation is much more common among these persons. The sensitivity to stimuli is also related to the extent a person is extraverted versus introverted. Extraverted people are more dependent on external stimuli in order to function compared to introverts (Aron & Aron, 1997). So unfortunately, the rule one-size-fits-all does not count for the built environment.

research questions

For this research on the individual perception of spaces I decided to focus on creative study environments, the Faculty of Architecture at Delft University of Technology in particular. This building was after all the place where I experienced loads of overstimulating elements such as bright colours, crowded study spaces and bad acoustics. Even though I really appreciate the building as well, especially its interaction encouraging spaces.

If we want to create a healthy study environment, we should take into account that everyone perceives a certain space differently. To me, a healthy, creative study environment is a place that stimulates creativity and contributes to a person's well-being. It means architecture for the brain. Creativity can be stimulated by internal and/or external factors and this will also depend on a person's personality. We cannot simply design work- and study spaces for 'the average person', because this person probably does not even exist.

To tackle the problem described above, I established three main research questions:

> which spatial and environmental elements of study environments may affect academic performance and well-being of students?

> how are various study environments of the Faculty of Architecture perceived by its students, what are the most distracting and pleasing elements of these environments, and consequently what is their behavioural response?

> what is the relation between the way a specific study environment is being perceived and the personality characteristics of the perceiver/user?

experiment

method

In order to answer the three main research questions, I came up with the idea to establish an **experiment** in the form of an interactive survey. This survey is conducted among students (and some tutors) of Delft University of Technology, mostly from the Faculty of Architecture, which is the case study for this experiment.

The first research question is also partly answered by studying existing, **neuroscientific literature**. This literature inquiry also helped me further with setting up the experiment and offered me some essential and useful background information. These literature findings also helped me developing a list with **design input** for the eventual design assignment.

The output of the experiment (to answer all three of the research questions) is also translated into design input.

theory and literature

To set up the interactive survey I conducted among students, I used the established framework below. This framework is developed by professor in psychology Albert Mehrabian and psychologist James A. Russell. The theory and proposed framework are derived from their book *An Approach to Environmental Psychology* (Mehrabian & Russell, An Approach to Environmental Psychology, 1974). The model suggests that the affective reaction to environments influence diverse behaviours (Russel & Pratt, 1980).

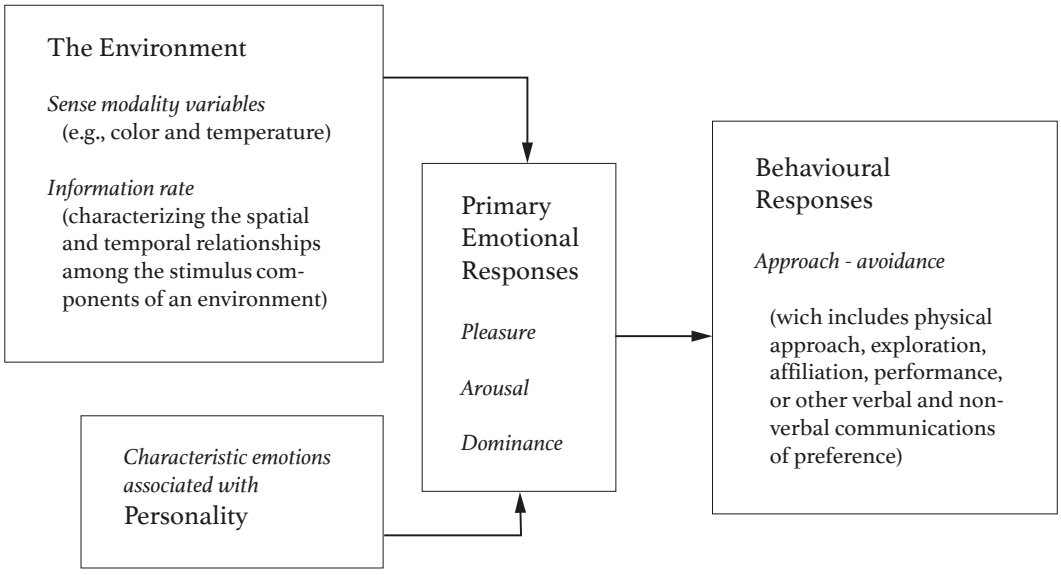


Figure 1 – Outline of the proposed framework (Mehrabian & Russell, An Approach to Environmental Psychology, 1974, p. 8)

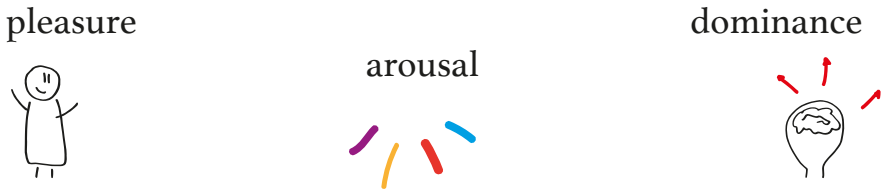
According to Mehrabian and Russell, environmental psychology is concerned with two major topics.

> Firstly, the **emotional impact** of physical stimuli;
> And secondly, the effect of physical stimuli on a variety of **behaviours** such as work performance and social interaction.

Experimentation of these topics is highly difficult, since an endless list of dependent and independent variables is incorporated. Results of research using so many different variables are difficult to integrate and to draw conclusions from. Mehrabian and Russell proposed the framework above for assessing environmental psychology, where important variables that occur in most situations are outlined.

The psychologists propose the theory that **physical or social stimuli** in the environment directly affect the **emotional state of a person**, by also influencing his or her **behaviour** in it. (Mehrabian & Russell, An Approach to Environmental Psychology, 1974, p. 8)

- Pleasure, arousal and dominance ('PAD-model')



The three dimensions **pleasure, arousal** and **dominance** were developed by Mehrabian and Russell to assess environmental perception, experience and psychological responses. The three emotional response variables summarise the emotion-evoking qualities of environments and can be used to describe the emotional response of a person in a specific environment. (Mehrabian & Russell, An Approach to Environmental Psychology, 1974)

Mehrabian and Russell continued their research for decades and kept developing modes to approach these dimensions. They were applied by many other researchers to describe people's state of feeling.

> **Pleasure (**feeling) – is conceived as a continuous degree to which a person feels happy or satisfied in a place. Adjectives such as *happy* vs *unhappy*, *pleased* vs *annoyed* and *satisfied* vs *unsatisfied* are used to define a person's level of pleasure. (Bakker, van der Voordt, Vink, & de Boon, 2014)
>
> **Arousal** (thinking) – is conceived as a mental activity and the degree of stimulation caused by an atmosphere. Adjectives such as *stimulated* vs *relaxed*, *excited* vs *calm* and *wide-awake* vs *sleepy* define arousal. (Bakker, van der Voordt, Vink, & de Boon, 2014)

> **Dominance (**acting) – is related to the feeling of control and the degree to which an individual feels that he or she is restricted in his or her behaviour or that he or she has influence over the environment and is in control of a situation. Adjectives such as *controlling* vs *controlled*, *influential* vs *influenced,* and *autonomous* vs *guided* are used to describe the degree of dominance. (Bakker, van der Voordt, Vink, & de Boon, 2014)

For this part, it is important to distinguish *emotions* ('emotional states') from *temperament* ('emotional traits'). Emotional *states* refer to conditions that can vary rapidly during the day (e.g. feeling *tired* vs *awake*, feeling *happy* vs *unhappy*). Contrary, emotional *traits* can be indicated by averaging individual's emotional *states* of everyday situations. To describe a person's emotional *states*, the general PAD (pleasure, arousal, dominance)-model can be used. (Mehrabian, Pleasure-Arousal-Dominance: A General Framework for Describing and Measuring Individual Differences in Temperament, 1996)

In many publications on environmental psychology (Russell, 1980; Russell, Ward, & Pratt, 1981; Chebat & Michon, 2003; Mattila & Wirtz, 2006; Kuppens, 2008) little or even no attention is given to the dimension of dominance. In these studies, models are used with only two axes, the degree of pleasure on the one axe and the degree of arousal on the other (Bakker, van der Voordt, Vink, & de Boon, 2014). Bakker, Van der Voordt, Vink and De Boon propose in their review that dominance should be included in further research as a third dimension (Figure 2), instead of the nowadays often used two dimensional model (with pleasure and arousal). In this way the complete range of human responses is represented in further research (Bakker, van der Voordt, Vink, & de Boon, 2014).

In the experiment I established, I therefore decided to take into account all three of the dimensions, including dominance.

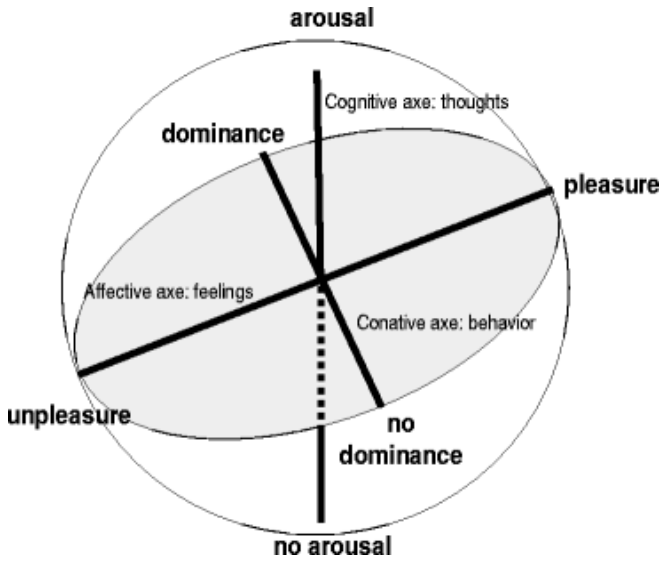


Figure 2 – Three-dimensional model of pleasure, arousal and dominance as tripartite view of experience (Bakker & de Boon, 2012)

application

Beneath, I will explain how the proposed framework by Mehrabian and Russell is applied to the experiment I conducted.

- The Environment.

There are two versions of the experiment, in the form of an interactive survey. In each of the versions, three distinctive spaces at the Faculty of Architecture TU Delft are examined.

The spaces that are tested in the first version are the *Orange Hall* (environment 1), the *BK Library* (environment 2) and the *Model Hall* (environment 3).
The spaces that are tested in the second version are the *Studio/Atelier space* (environment A), the *Canteen 'Ketelhuis'* (environment B) and an *in-between-space* below the red stairs (environment C).

The six spaces are divided over two versions of the survey, because composing one version including all six of the environments would be too long. In this way, still all six of the spaces are being tested, and the threshold for students to participate in the experiment is not too high. The division of the spaces over the two versions of the survey is well-balanced between crowded and more peaceful spaces, and between often used and less used environments.

Small videos (of 15-20 seconds), consisting of several images accompanied by auditory background noises related to that environment, are made to represent each of the six environments.

- Primary Emotional Responses.

After the respondents watched the video of the specific environment, various descriptions of feelings are proposed to them to measure their **primary emotional response**, defined in terms of the three basic dimensions pleasure, arousal and dominance. How is the environment concerned being perceived by the respondent? How *pleasant, comfortable, stimulating, peaceful* or *controlling,* and to which degree?

Subsequently, respondents are asked to which degree spatial and sensory elements (*colour, daylight, artificial light, materials, objects, presence of other people, aesthetics, spatial measurements* and *background noise*) are being perceived as *distracting* or *pleasing.*

The respondents rated the emotional responses on a seven-point scale ranging from *strongly agree* to *strongly disagree.*

- Behavioural Responses.

The approach-avoidance response of the proposed framework in the experiment is interpreted by measuring student's attitudes towards a certain study environment.

The subsequent questions measured the action or activity the respondent decides to undertake in the specific environment, the **behavioural response.** These formal and informal activities are all related to the design process in create, academic environments.

Activities that take place in environments like these are *working individually* (reading, designing, self-reflection), *having a phone call conversation*, *making an architectural model*, *having a meeting with a tutor* (one to one), *having a conversation* (small talk with 2-3 persons, not necessarily study-related), *having a discussion* (3-8 persons), *having a group meeting* (8-15 persons), *giving a presentation* (2-15 persons) and whether the respondent would *use earplugs* in a specific environment to block the distracting noises.

Besides, for testing creative environments it is also relevant to measure if a space invites the user to *explore around*, to *think out a difficult task*, to *come up with creative, new ideas and concepts* or to *feel friendly and talkative to a stranger*. The respondents rated these behavioural responses above on a seven-point scale ranging from *strongly agree* to *strongly disagree.* Respondents were also asked how much time they would like to spend in the environment concerned.

Some of these measured responses were derived from previous research of Mehrabian and Russell (Mehrabian & Russell, 1974, annex E).

- Personality.

The experiment ends with several questions and statements related to the respondent's personality.

The first questions of this part are measuring the **arousal-seeking tendency** of the person concerned. This scale indicates the degree in which a person seeks for environmental stimuli or on the other hand avoids them.

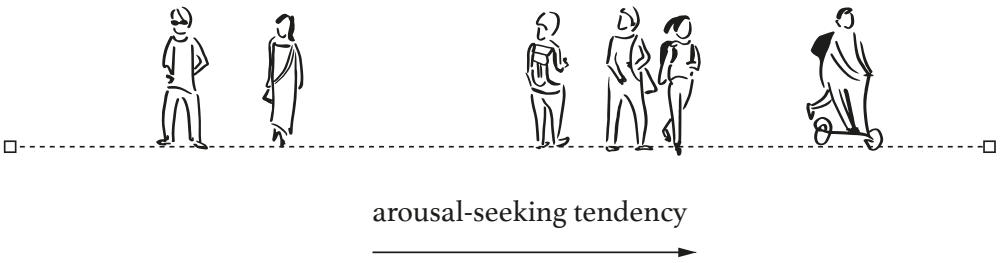


Figure 3 – Arousal-seeking tendency scale; from introversion up to extraversion (own image)

Mehrabian and Russell say the following on the subject of arousal-seeking tendency:

> "*An individual's preference for an environment is closely related to this preferred arousal level; some people characteristically prefer calm settings, whereas others actively seek to increase their arousal by electing novel, complex, or unpredictable settings. Thus, a person's preferred arousal level is of central importance to our framework, and a reliable questionnaire measure of arousal-seeking tendency is essential to our study of environmental psychology.*"
>
> - (Mehrabian & Russell, An Approach to Environmental Psychology, 1974, p. 30)

Extroversion, for example, has been defined by psychologist Hans Jürgen Eysenck as an arousal-seeking personality (Eysenck, 1967; 1970). Introversion is on the other end of the scale bar a non-arousal-seeking personality. Anxious or neurotic persons tend to seek for more arousal as well. Still, it is very difficult to measure one's arousal-seeking tendency. Needed, therefore, is a measure of individual differences in this tendency that is independent of other dimensions (Mehrabian & Russell, 1974, p. 31).

This personality-measurement resulted in a list consisting of 125 items, established by Mehrabian and Russell to describe the characteritic emotions of the respondents in their experiments (Mehrabian & Russell, 1974, pp. 34-41). A final version of this list was composed by selecting the best 40 items, which turned out to be most influential on the arousal-seeking tendency of a person.

For the experiment I conducted, I selected ten of these 40 items – e.g. *I pay much attention to my surroundings (+)*; *I often notice texture (+)s*; *I avoid busy, noisy places (-)*. All ten of the personality related statements are rated by the respondents on a seven-point scale ranging from *strongly agree* to *strongly disagree.* The plus (+) and minus (-) signs indicate the direction of scoring on their arousal-seeking tendency.

Subsequently, some questions will be asked related to the respondent's habits and personality. Is he or she mostly productive in the *morning*, or is he or she an *evening* person? Is the person concerned often *distracted* when studying/working? How often does he or she take a *break* during the day? Finally, respondents are asked which elements or activities stimulate their *creativity* and *focus*, if the person concerned has a specific *mental disorder* or *condition*, their *age, gender*, *relation to the faculty* and their *current mood.*

- Variables.

The model with three axes below summarises the structure of the experiment explained above, with all its relevant variables.

On the one axe is the *environment* – the spaces have been examined in the experiment.

On the second axe is the *personality* – the degree in which the person concerned has a high or low arousal-seeking tendency.

On the third axe is the *emotional response* – described according to the PAD-model. This *emotional response* on the environment influences on its turn the *behavioural responses* (actions) of the person concerned. The activities are ordered from *low interaction* up to *high interaction* with the environment/other people.

The goal of the experiment I conducted for this research is to find relations between the variables of this model.

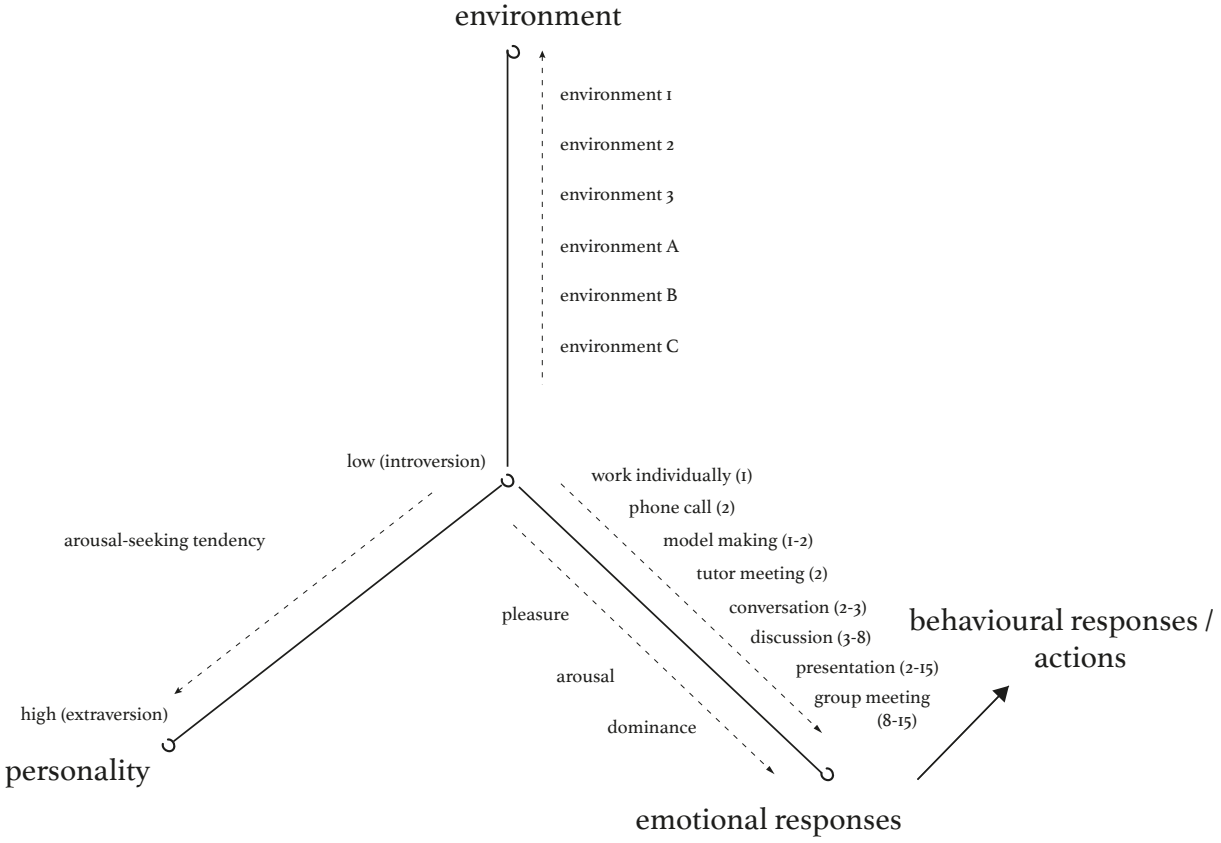


Figure 4 – Structure of the experiment with relevant variables (own image)

set up

The experiment is created in SurveyMonkey, an online platform to develop interactive surveys and to collect data from.

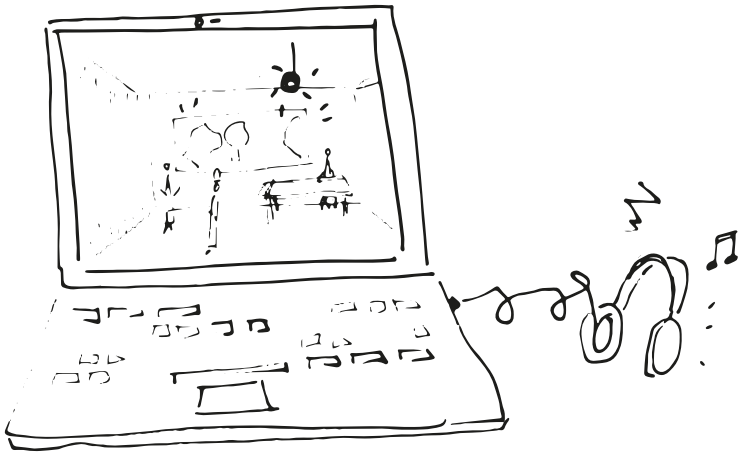
Like mentioned before – two versions of the experiment were established;

Brain health in academic environments (123)
Examined environments – Orange Hall, BK Librabry, Model Hall

Brain health in academic environments (ABC)
Examined environments – Studio Space, Canteen ('Ketelhuis'), in-between-space below the red stairs.

The online weblinks of the surveys were distributed among students (and some tutors) of the Faculty of Architecture, via e-mail and social media.

A full list with questions and answers of both versions of the survey can be found in **annex 1.**



hypotheses

The schematic framework of the various variables in the experiment below helps to formulate the hypotheses of my experiment and creates a coherent overview.

Since there are so many variables involved in this experiment, a lot of hypotheses could be established as well. Below, I will elaborate on the most relevent ones.

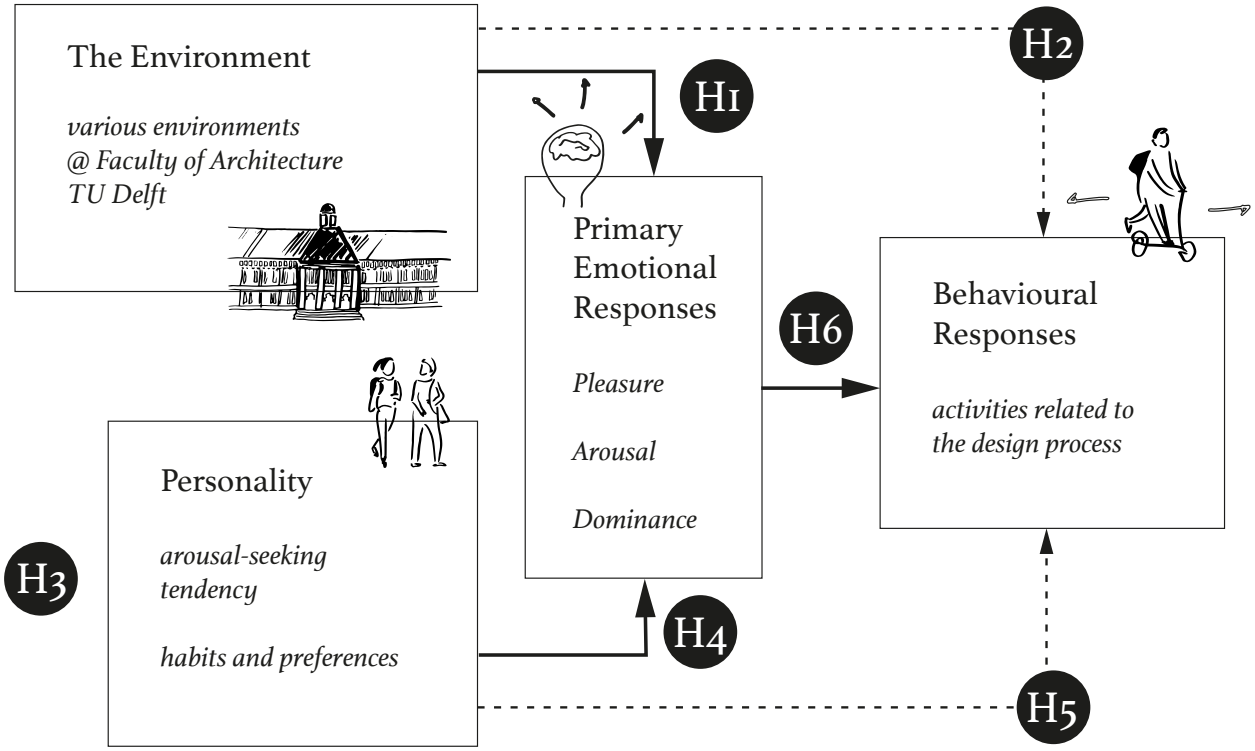


Figure 5 – Schematic framework of experiment and its variables (own image)

H1 On the influence of the *environment* on the *emotional responses* of the perceiver, I expect to observe the following relations;

> The Faculty of Architecture is an environment with a considerable *high level of arousal*, so the six environments will overal be perceived as *stimulating* and *exciting,* and less as *peaceful.*

> Crowded and/or colourful environments (*Orange Hall, Model Hall, Studio Sapce, Canteen*) will be experienced as more *stimualting* and *exciting*, and less crowded and/or colourful environments (*BK Library)* will be experienced as more *peaceful.*

> Since the faculty is overal a quite crowded environment, I expect that all six of the environments will be experienced as *controlling* to a certain degree.

> Environmental elements as *background noise* and *presence of other people* will be experienced as very *distracting* in more crowded and noisy environments (*Orange Hall, Model Hall, Studio Space, Canteen*).

> The element of *colour* will be experienced as very *distracting* in environments where these colours are very present (*Orange Hall, Studio Space, 'in between space' below the red stairs)*

H2 On the influence of the *environment* on the *behavioural responses* of the perceiver, I expect to observe the following relations;

> *Quiet* environments (*BK Library*) are considered as more appropriate for activities that requiere *little interaction* with the environment, compared to more *crowded and noisy* environments (*Orange Hall, Model Hall, Studio Space*).

> The perceivers will *use earplugs* more often in crowded and noisy environments (*Orange Hall, Model Hall, Canteen, Stairs*) compared to more quiet environments (*BK Library*).

> The *Studio Space* will not be considered as a good environment to undertake activities that require less interaction with the environment (*to work individually, to meet with tutor, to think out a difficult task, to come up with new, creative ideas*).

H3 On the *personality* of the respondents, I expect to observe the following relations;

> The respondents are often *distracted by social media* when studying/working.

> *Focus* is mainly stimulated by *internal* factors - as *meditation, a good night of rest, nature, boredom* (Steijaert, 2018)

> *Creativity* is mainly stimulated by *external* factors - as *colour, brainstormsessions, media, reference projects*.

H4 On the influence of the *personality* on the *emotional responses* of the perceiver, I expect to observe the following relations;

> Respondents with a *lower* arousal-seeking tendency are more often distracted by environmental elements compared to respondents with a *higher* arousal-seeking tendency.

> Respondents with a *higher* arousal-seeking tendency perceive crowded and noisy spaces (*Orange Hall, Model Hall, Canteen, Stairs)* as more pleasant and comfortable compared to respondents with a *lower* arousal-seeking tendency.

> Respondents with a *lower* arousal-seeking tendency perceive peaceful and more quiet spaces (*BK Library*) as more *pleasant* and

comfortable compared to respondents with a *higher* arousal-seeking tendency.

> Respondents with a *lower* arousal-seeking tendency experience a certain environment as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate) compared to respondents with a *higher* arousal-seeking tendency.

> If the respondent is currently *feeling better* (e.g. scores *higher* on the *current mood*-scale), he or she perceives the examined environments as more *pleasant* and *comfortable*.

> *Creativity* of respondents with a *higher* arousal-seeking tendency – extraversion – is stimulated by more *external* factors (*colour, music, surroundings, conversations*, etc.) compared to respondents with a *lower* arousal-seeking tendency – introversion.

> *Creativity* of respondents with a *lower* arousal-seeking tendency – introvertion – is stimulated by more *internal* factors (*meditation, quietness, good night of rest*, etc.) compared to respondents with a *higher* arousal-seeking tendency – extravertion.

H5 On the influence of the *personality* on the *behavioural responses* of the perceiver, I expect to observe the following relations;

> Respondents with a *higher* arousal-seeking tendency are more likely to undertake any activity (e.g. have a *higher activity-rate*) in the environments.

> Respondents with a *lower* arousal-seeking tendency, *prefer studying at home* over studying at the faculty, compared to respondents with a *higher* arousal-seeking tendency.

> Respondents with a *higher* arousal-seeking tendency spend more hours at the faculty compared to respondents with a *lower* arousal-seeking tendency.

H6 On the influence of the *emotional responses* on the *behavioural responses* of the perceiver, I expect to observe the following relations;

> If a certain environment is perceived as more *pleasant* and *comfortable*, the *activity*-rate in that environment is *higher* (e.g. the respondent is more willing to undertake activities in the environment concerning).

> If a certain environment is perceived as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate), the *activity*-rate in that environment is *higher* (e.g. the respondent is more willing to undertake activities in the environment concerning).

> If a certain environment is perceived as more *controlling*, the *activity*-rate in that environment is *higher* (e.g. the respondent is *more* willing to undertake activities in the environment concerning).

> If a certain environment is perceived as more *pleasant* and *comfortable*, the respondent is *more* willing to *work individually* in that environment.

> If a certain environment is perceived as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate), the respondent is *less* willing to *work individually* in that environment.

> If a certain environment is perceived as more *controlling,* the respondent is *more* willing to *work individually* in that environment.

> If a certain environment is perceived as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate), the respondent is *more* willing to undertake activities in that space that require *high interaction* with the environment .

> If a certain environment is perceived as more *pleasant* and *comfortable*, the respondent is *more* willing to undertake activities in that space which require *high interaction* with the environment .

> If a certain environment is perceived as more *controlling*, the respondent is *less* willing to undertake activities in that space which require *high interaction* with the environment .

results

general

Experiment **123**;
Respondents: 16
Average time spent: 15 minutes
Completion rate: 89%

Experiment **ABC**;
Respondents: 17
Average time spent: 23 minutes
Completion rate: 89%

Each respondent participated in only **one** of the surveys, so there are 33 respondents in total. Some respondents did not finish the survey, so their responses are not taken into account in the analyses.

The respondents are (former) students of the Faculty of Architecture or are in a way related to this faculty (e.g. tutors). They are familiar with the building, and/or experienced working in it for a period of time. A few respondents did not have a clear relation with the building but are familiar with the academic design process and related activities to this process (for instance students of the faculty Industrial Design at Delft University of Technology).

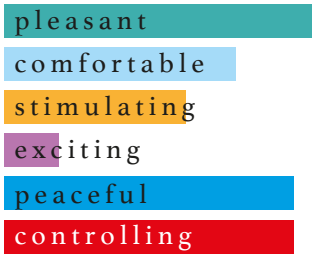
It must be said that it is very difficult to analyse the responses and to draw conclusions from them. Environmental psychology is very complex and hard to have a grasp on. There are probably too many variables involved that have an influence on the perception of space.

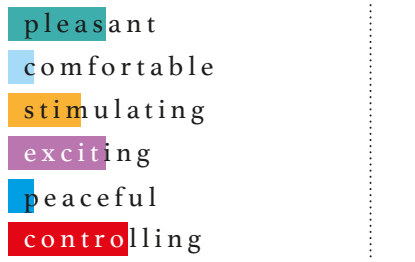
So therefore, I would not say that there could be drawn solid conclusions from this experiment. However, there are some interesting findings and relations to observe from the results.

These findings could serve as interesting starting points in further research. It provides us more clarification in which factors we should take into account in future research, and which not.

influence of the *environment* on the *emotional responses*

The charts below show the emotional responses on the various environments. The coloured bar charts indicate the approximate percentages of how the environment concerning is being perceived in that way by the respondents, defined in terms of the three basic dimensions pleasure, arousal and dominance. How *pleasant, comfortable, stimulating, peaceful* or *controlling,* and to what degree?
The exact numbers of the responses can be found in **annex 1.**





Some interesting findings that can be analysed from the results are;
> The BK Library is perceived as a very *pleasant* environment.
> The 'in-between-space' below the red stairs is **not** clearly considered as pleasant, comfortable, stimulating, exciting, peaceful or controlling. The emotional response of this environment is quite *undefined*.
> Overall, the six environments are not considered as very *peaceful* (except for the BK Library).
> Overall, the six environments are perceived as quite *controlling*.
> Overall, the six environments are considered as quite *pleasant*, *stimulating* and *exciting*.

The charts below show some additional emotional responses on the six environments, regarding *distracting* and *pleasing* elements of the spaces. The grey bar charts indicate the approximate percentages of how pleasing or distracting the specific elements are being perceived by the respondents.
The exact numbers of the responses can be found in the annex (??).

	distracting:	100%	pleasing:	100%
 orange hall	background noise other people colour spatial measurements		daylight spatial measurements other people	
 bk library	other people		daylight objects spatial measurements	
 model hall	background noise other people		daylight spatial measurements other people aesthetics materials colour	
 studio space	background noise other people objects colour		daylight spatial measurements artificial light	
 ketelhuis	background noise other peop object materi		aesthetics materials daylight spatial measurements objects colour	
 stairs	other people background noise colour aesthetics spatial measurements objects		daylight colour	

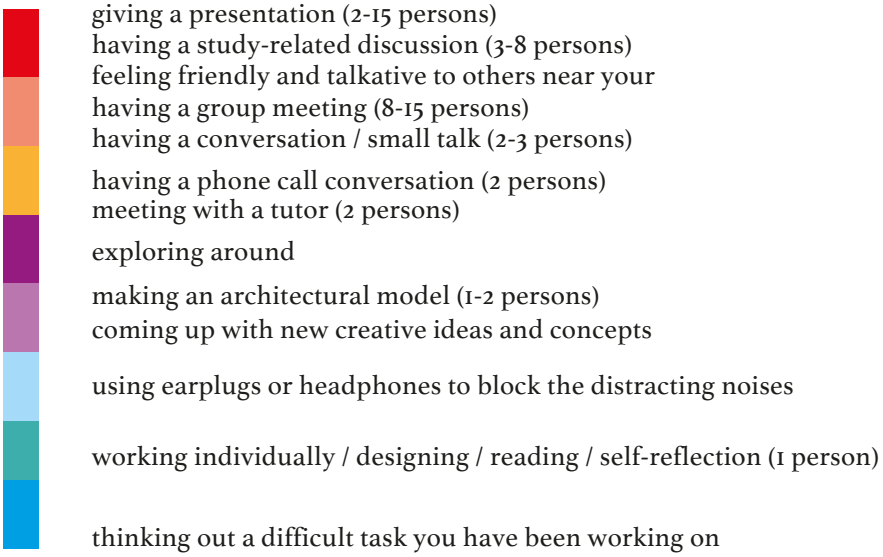
Some interesting findings that can be analysed from the results are;
> Overall, *background noise* is considered as very *distracting* in most environments.
> In all six of the environments, the element of *daylight* is considered as very *pleasing.* Apparently, the building itself is a very pleasant environment regarding the presence of daylight.
> The *presence of other people* is considered as very *distracting* in all the environments, but is at the same time considered as very *pleasing* as well. Students appreciate to be in a controlling environment surrounded by other working students but prefer not to be too much distracted.
> The *spatial measurements* of spacious and high spaces (*Orange Hall, Model Hall*) is considered as very *pleasant*.
> The element of *colour* was is considered as very *distracting,* in spaces where the presence of colour is very obvious and bright (*Orange Hall, Studio Space, Stairs*).

influence of the *environment* on the *behavioural responses*

This analysis clarifies which activities the respondents are willing to undertake in the six environments. For which functions is a specific environment appropriate?

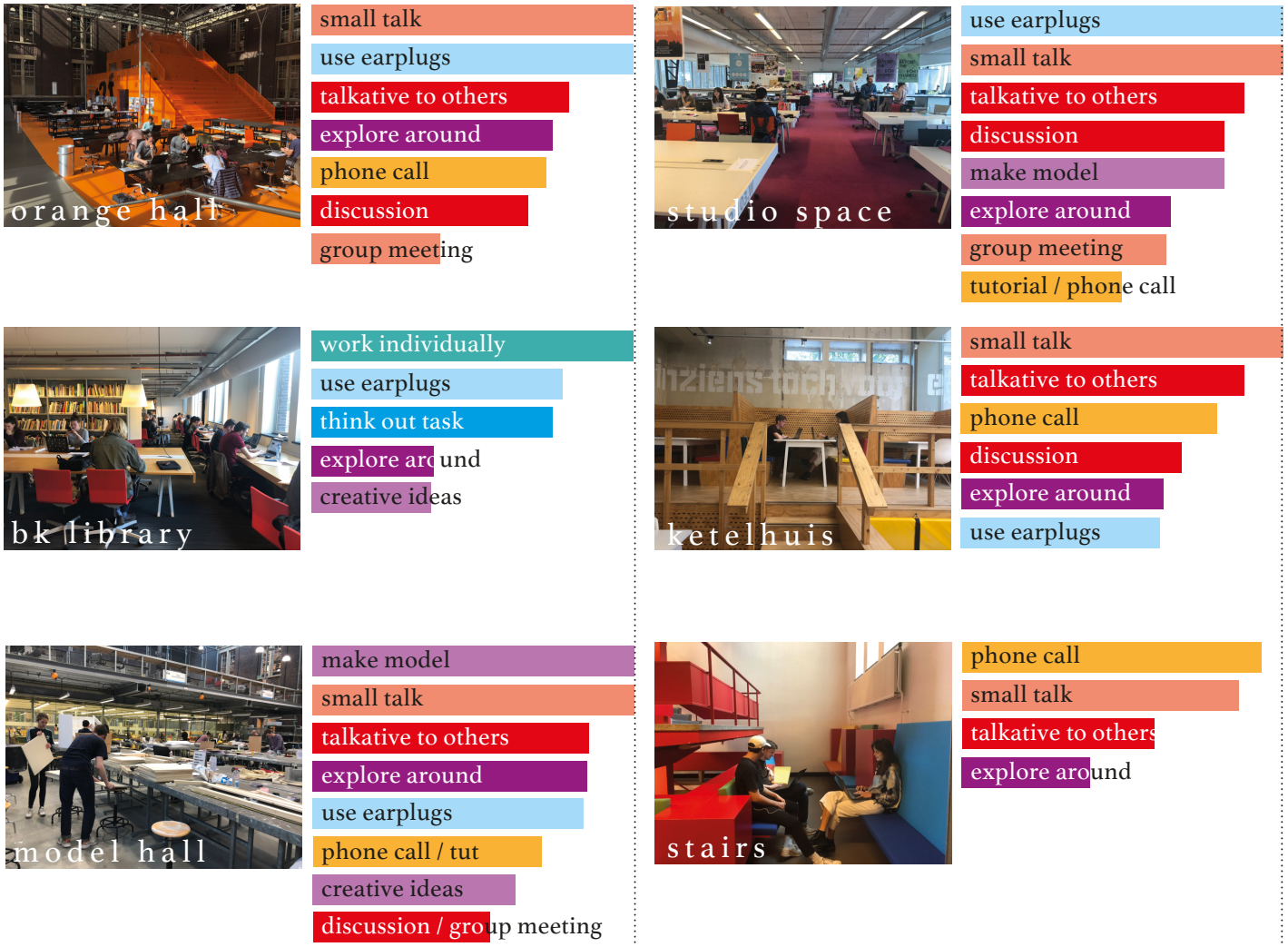
The activities are ordered from *low interaction* up to *high interaction* with the environment or other people:

high interaction



low interaction

The charts below show the behavioural responses on the various environments. They show which activities the respondents are willing to undertake in the environment and to what degree. The coloured bar charts indicate the percentages of how a specific function is considered as appropriate for the environment concerning.
The exact numbers of the responses can be found in **annex 1.**



Some interesting findings that can be analysed from the results are;
> A quiet environments like the *BK Library* is considered as an appropriate space for undertaking activities that require *less interaction* with the environment or other people (*to work individually, to think out difficult tasks, using earplugs to block distracting noises*).
> Respondents prefer to *use earplugs* to a great degree in five of the six environments. The level of sound is apparently too high in those environments in order to focus or study.
> Five out of the six environments were considered as very appropriate to *feel friendly and talkative to others*, to *explore around* and to *have a small conversation*. The building itself is apparently experienced as an environment that encourages interaction among students, which is convenient for developing new, creative ideas.
> The respondents *only* considered the *BK Library* as a good environment to *work individually* (designing/reading/self-reflection).
> The *Studio Space* is *not* a good environments to *work individually,* to *give presentations,* to *think out difficult tasks* or to *come up with new, creative ideas,* according to the respondents. This is worrisome since spaces like this really *should* offer environments which encourage those activities to take place.
> The average *time* repsondents would like to spend in the environments correlates with the conventional time spent in the environment concerning (e.g. *an hour* in the canteen, a *couple of hours* up till *one day* in study spaces and a *couple of minutes* in the 'in-between-space').

analysis of the *personality* of the respondents

The first questions related to the respondent's personality are measuring the arousal-seeking tendency of the person concerned. Simply one can say that introversion means having a low arousal-seeking tendency and extraversion means having a higher arousal-seeking tendency (see chapter 'theory and literature' for more theoratical background information on this).

In order to measure the arousal-seeking tendency of a person, it was necessary to develop a rating system. Respondents were given ten statements related to this tendency (see full list of questions in *annex* ...). All ten of the personality related statements are rated by the respondents on a seven-point scale ranging from *strongly agree* to *strongly disagree.* Subsequently, these responses are rated according to a rating system (see *annex* ... for rating system). The plus (+) and minus (-) signs indicate the direction of scoring on their arousal-seeking tendency. All the respondents scored between -9 and 13 on the arousal-seeking tendency scale bar.

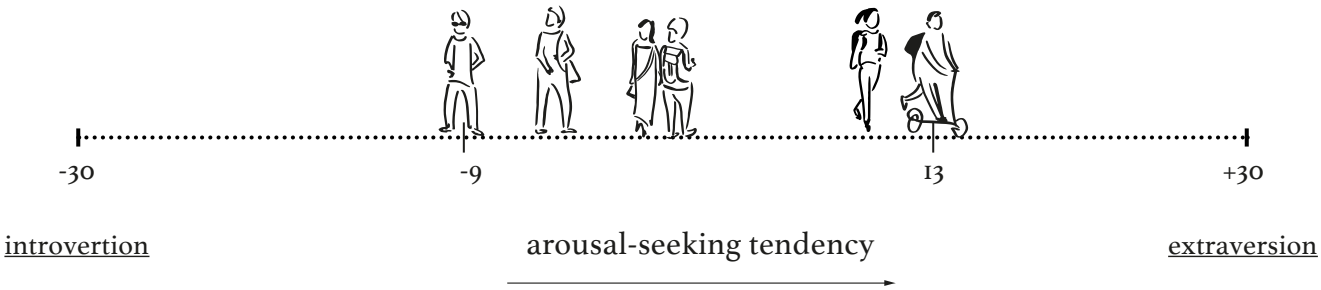
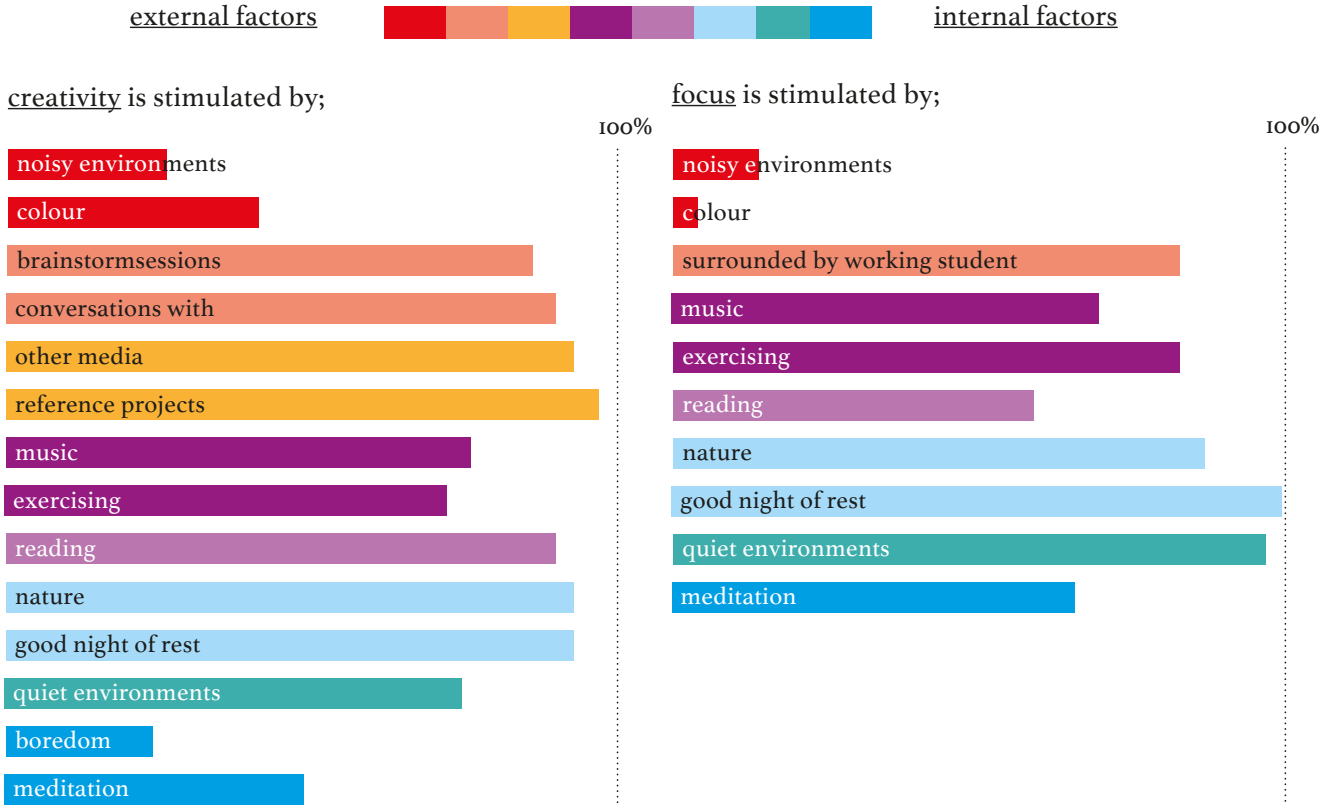


Figure 6 – Arousal-seeking tendency scale bar of the respondents (own image)

The bar charts below show the responses on other personality related questions regarding study habits and preferences. The coloured bar charts indicate the approximate percentages to what degree a specific habit or preference is relevant for the person concerned.

Some interesting findings that can be analysed from the results are;
> The respondents are to a great degree often *distracted by the environment* and even more by *social media*, when studying.
> A great deal of the respondents is *taking a break every 4 hours of studying*, but a smaller group is *taking a break every 1.5 hours of studying*.
> Only a very small group *prefers studing at home* over studying at the faculty.

The questions that followed measured the degree to which certain activities or environmental elements stimulate a person's focus or creativity. Again, respondents rated these answers on a seven-point scale ranging from *strongly agree* to *strongly disagree*. The bar charts below indicate the approximate percentages to what degree a specific activity or environmental element is stimulating the focus or creativity of the respondent. The activities and elements are ordered from *external factors* up to *internal factors*. Internal factors (activities or elements) require less interaction with the environment or other people than external factors.



Some interesting findings that can be analysed from the results are;
> The activities and elements that stimulate *creativity* is quite evenly divided over *external* and *internal factors* (e.g. there is no tendency towards one of the directions). Further analysis will show if these factors are dependent on the respondent's personality.
> *Focus* is more stimulated by *internal factors* than *external factors*.
> *Focus* is to a great extent stimulated by *being surrounded by other working students*. This underwrites previous analyses of the influence of controlling environments on students emotions (see 'influence of the *environment* on the *emotional responses*').
> According to the respondents, *boredom* is not considered as as stimulating for their creativity. However, according to research, being bored can be very benefitial for creativity and focus (Steijaert, 2018). Apparently, students are not aware of this effect.

In the following part of the analysis, the aim was to seek for relations between the *perception of the environment,* the *emotional responses*, the *behavioural responses* and *personality traits*. The relations that I tested are based on my hypotheses.

In order to find relations between these factors, I rated all of the individual responses of the surveys. The rating tables of the responses can be found in **annex 3**.

Subsequently, I compared these numbers to each other in spread diagrams. To analyse any relations between them, I calculated the *correlation cooefficient* of the two variables.

Correlation coefficient formulas are used to find how strong a relationship is between data (Statistics How To, 2019). The formulas return a value between -1 and 1, where;

r = 1 ;	*perfect positive* linear correlation
1 > r > 0.8 ;	*strong positive* linear correlation
0.8 > r > 0.4 ;	*moderate positive* linear correlation
0.4 > r > 0 ;	*weak positive* linear correlation
r = 0 ;	no correlation
0 > r > -0.4 ;	*weak negative* linear correlation
-0.4 > r > -0.8 ;	*moderate negative* linear correlation
-0.8 > r > -1 ;	*strong negative* linear correlation
r = -1	*perfect negative* linear correlation

(Newcastle University, 2019)

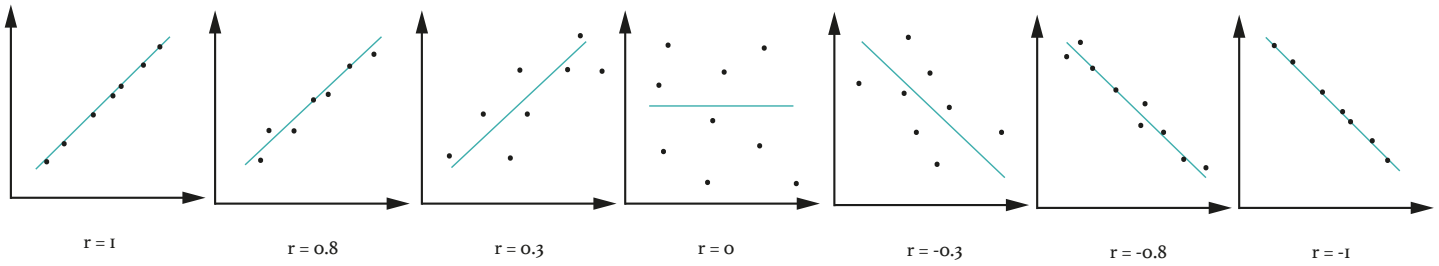


Figure 7 – Examples of correlation coefficients (own image)

Since so many variables were included in the experiment, a lot of spread diagrams and calculations of corrrelation coefficients had to be conducted. It is difficult to draw conclusions from these calculations, since most of the correlations turned out to be weak or moderate (positive or negative). Also, much more responses are required to really find solid relations between the variables.

However, like mentioned before, there are some interesting findings to observe from the results that could serve as interesting starting points in further research.

Hereafter, I will eleborate on the coorelations that I found between the variables of the responses.

the influence of the *personality* on the *emotional responses*

For this part of the analysis, the *arousal-seeking tendency* (personality) and the *current mood of respondents* is compared to the *emotional responses* (being distracted, pleasure/comfort-rate, arousal-rate). All spread diagrams and related correlation coefficients of the variables below can be found in **annex 3** (diagrams A - N).

The following variables are compared to each other, to observe any relations;

Diagram A+B
arousal-seeking tendency against *distracting elements* of all environments
> Both diagrams show a *weak negative* linear correlation

Diagram C+D
arousal-seeking tendency against *distracting elements* of *stimuli-rich spaces* (Orange Hall, Model Hall, Canteen, Stairs)
> Both diagrams show a *weak negative* linear correlation.

Diagram E
arousal-seeking tendency against *distracting elements in the Studio Space*
> The diagram shows a *weak positive* linear correlation.

Diagram F
arousal-seeking tendency against *pleasure/comfort-rate of Orange Hall*
> The diagram shows a *weak positive* linear correlation.

Diagram G
arousal-seeking tendency against *pleasure/comfort-rate of Studio Space*
> The diagram shows a *very weak positive* linear correlation.

Diagram H
arousal-seeking tendency against *pleasure/comfort-rate of BK Library*
> The diagram shows a *moderate positive* linear correlation.

Diagram I+J
arousal-seeking tendency against *arousal-rate* (stimulating + exciting - peaceful) of all environments
> Diagram I shows a *moderate negative* linear correlation
> Diagram J shows a *very weak negative* linear correlation.

Diagram K+L
pleasure/comfort-rate of all environments against *current mood of respondents*
> Diagram K shows a *very weak positive* linear correlation
> Diagram L shows a *weak positive* linear correlation.

Diagram M
arousal-seeking tendency against *creativity from external factors*
> Diagram M shows a *weak positive* linear correlation.

Diagram N
arousal-seeking tendency against *creativity from external factors*
> Diagram N shows a *moderate negative* linear correlation.

the influence of the *personality* on the *behavioural responses*

For this part of the analysis, the *arousal-seeking tendency* (personality) is compared to the *behavioural responses* (studying at home, studying at the faculty, activity-rate). All spread diagrams and related correlation coefficients of the variables below can be found in **annex 3** (diagrams O - R).

The following variables are compared to each other, to observe any relations;

Diagram O+P
arousal-seeking tendency of the respondents against *activity-rate* in the environments
> Diagram O shows a *weak positive* linear correlation.
> Diagram P shows a *weak negative* linear correlation. Since these correlations are opposites, they cancel each other out.

Diagram Q
arousal-seeking tendency of the respondents against the *activity-rate* in the environments
> Diagram Q shows a *weak negative* linear correlation.

Diagram R
arousal-seeking tendency of the respondents against the *spent hours at the faculty*
> Diagram R shows a *very weak negative* linear correlation. However, the red dots indicate respondents that have a specific mental disorder or condition. The diagram shows that the average hours spent at the faculty of these people is in general less compared to respondents that do not have a specific mental disorder or condition.

the influence of the *emotional responses* on the *behavioural responses*

For this part of the analysis, the *emotional responses* (according to the pleasure-, arousal-, dominance-model) is compared to the *behavioural responses* (activities that respondents are willing to undertake in the environment concerning). All spread diagrams and related correlation coefficients of the variables below can be found in **annex 3** (diagrams S - AF).

The following variables are compared to each other, to observe any relations;

Diagram S+T+U+V+W+X
pleasure/comfort-rate of the six environments against the *activity-rate* (e.g. the respondent's will to undertake any activity in the environment concerning)
> Diagram S (*Orange Hall*) shows a *weak positive* linear correlation.
> Diagram T (*Studio Space*) shows a *weak positive* linear correlation.
> Diagram U (*BK Library*) shows a *moderate positive* linear correlation.
> Diagram V (*Canteen*) shows a *moderate positive* linear correlation.
> Diagram W (*Model Hall*) shows a *moderate positive* linear correlation.
> Diagram X (*Stairs*) shows a *weak positive* linear correlation.

Diagram Y+Z+AA+BB+CC+DD
arousal-rate (stimulating + exciting - peaceful) of the six environments against the *activity-rate* (e.g. the respondent's will to undertake any activity in the environment concerning)

> Diagram Y (*Orange Hall*) shows a *weak negative* linear correlation.
> Diagram Z (*Studio Space*) shows a *moderate positive* linear correlation.
> Diagram AA (*BK Library*) shows a *weak positive* linear correlation.
> Diagram BB (*Canteen*) shows a *weak negative* linear correlation.
> Diagram CC (*Model Hall*) shows a *weak positive* linear correlation.
> Diagram DD (*Stairs*) shows a *very weak positive* linear correlation.

Diagram EE+FF+GG+HH+II+JJ
controlling-rate of the six environments against the *activity*-rate (e.g. the respondent's will to undertake any activity in the environment concerning)

> Diagram EE (*Orange Hall*) shows a *very weak positive* linear correlation.
> Diagram FF (*Studio Space*) shows a *weak positive* linear correlation.
> Diagram GG (*BK Library*) shows a *very weak negative* linear correlation.
> Diagram HH (*Canteen*) shows a *moderate negative* linear correlation.
> Diagram II (*Model Hall*) shows a *weak positive* linear correlation.
> Diagram JJ (*Stairs*) shows a *weak negative* linear correlation.

Diagram KK+LL+MM+NN+OO+PP
pleasure/comfort-rate of the six environments against the respondent's will to *work individually* in the environment concerning

> Diagram KK (*Orange Hall*) shows a *moderate positive* linear correlation.
> Diagram LL (*Studio Space*) shows a *weak positive* linear correlation.
> Diagram MM (*BK Library*) shows a *moderate positive* linear correlation.
> Diagram NN (*Canteen*) shows a *weak positive* linear correlation.
> Diagram OO (*Model Hall*) shows a *moderate positive* linear correlation.
> Diagram PP (*Stairs*) shows a *very weak negative* linear correlation.

Diagram QQ+RR+SS+TT+UU+VV
arousal-rate (stimulating + exciting- peaceful) of the six environments against the respondent's will to *work individually* in the environment concerning

> Diagram QQ (*Orange Hall*) shows a *very weak negative* linear correlation.
> Diagram RR (*Studio Space*) shows a *very weak negative* linear correlation.
> Diagram SS (*BK Library*) shows a *weak negative* linear correlation.
> Diagram TT (*Canteen*) shows a *very weak positive* linear correlation.
> Diagram UU (*Model Hall*) shows a *weak positive* linear correlation.
> Diagram VV (*Stairs*) shows a *very weak positive* linear correlation.

Diagram WW+XX+YY+ZZ+AB+AC
controlling-rate of the six environments against the respondent's will to *work individually* in the environment concerning

> Diagram WW (*Orange Hall*) shows a *moderate positive* linear correlation.

> Diagram XX (*Studio Space*) shows a *weak positive* linear correlation.
> Diagram YY (*BK Library*) shows a *weak positive* linear correlation.
> Diagram ZZ (*Canteen*) shows a *weak positive* linear correlation.
> Diagram AB (*Model Hall*) shows a *weak positive* linear correlation.
> Diagram AC (*Stairs*) shows a *very weak positive* linear correlation.

Diagram AD
arousal-rate (stimulating + exciting- peaceful) of the environment against the *interaction-rate* (e.g. the respondent's will to undertake activities that require *high interaction* with the environment or other people; phone call conversation, model making, tutor meeting, conversation, discussion, group meeting)
> Diagram AD shows a *moderate positive* linear correlation.

Diagram AE
pleasure/comfort-rate of the environment against the *interaction-rate* (e.g. the respondent's will to undertake activities that require *high interaction* with the environment or other people; phone call conversation, model making, tutor meeting, conversation, discussion, group meeting)
> Diagram AE shows *very weak negative* linear correlation.

Diagram AF
controlling-rate of the environment against the *interaction-rate* (e.g. the respondent's will to undertake activities that require *high interaction* with the environment or other people; phone call conversation, model making, tutor meeting, conversation, discussion, group meeting)
> Diagram AF shows a *weak negative* linear correlation.

further analysis of the results

The calculations presented below are a further analysis of the responses of both versions of the experiment. These calculcations are conducted by Gust Mariën, research assistant at Delft University of Technology.

Principal component analysis **(annex 4)**

In this part of the analysis, the responses will be investigated wether the variables are correlated to each other by certain factors.

In order to conduct this analysis, the emotional responses of the survey are divided into three categories to analyse certain relations; the appreciation of the environment (1), which environmental elements distract the respondent (2) and which environmental elements perceives the respondents as pleasant (3). I.e. appreciation (1), distract (2) and enjoy (3).

The analysis are executed in R (software for statistical computing). The approach of the analysis is explained in *An introduction to principal component analysis & factor analysis using SPSS 19 and R* (Beaumont, 2012).

	appreciation (1)
pleasant	pleas.
comfortable	comf.
stimulating	stim.
exciting	exc.
peaceful	peac.
controlling	ctr.

	distract (2)	**enjoy (3)**
colour	col.	col.p
daylight	dlight.	dlight.p
artificial light	alight.	alight.p
materials	mat.	mat.p
objects	obj.	obj.p
presence of other people	peop.	peop.p
aesthetics	aesth.	aesth.p
spatial measurements	measu.	measu.p
(background) noise	noise.	noise.p

In order to determine if the data is adequate for the principal component analysis, three calculations are executed; the determinant of the correlation matrix, the Bartlett test of sphericity and the Kaiser-Meyer-Olkin Measure of Sampling Accuracy (MSA). (Beaumont, 2012)
Annex 4 shows the results of these calculations.

The determinant of the correlation matrix should be higher than 0,00001 to rule out multicollinearity (i.e. collinearity; the phenomenon in which one varirable can be linearly predicted from the others).

The Bartlett test of sphericity should be significant to rule out that the found correlation matrix not differ from the identity matrix.

The Kaiser-Meyer-Olkin Measure of Sampling Accuracy (MSA) is given for all aspects/characteristics combined and separate for each aspect/characteristic. A value around 0.7 is adequate, below 0.5 is abonimable and could preferably be excluded from the analysis.

The execution of the principal component analysis contains loadings of the items on the factors (PC1, PC2, etcetera). The rows below shos the SS loadings ('eigenvalues') of the factor concerning. A SS loading below 1 is not interesting and the maximum factors to be calculated is three. Thereafter, the analysis is being executed again (by using the factors with a value above 1, with a maximum of three factors in total) with varimax rotation (by shifting the axes/factors to observe more optimal correlations).

Below, the calculations of the analyses of the three categories are explained below (see **annex 4** for results);

Apprecation - Looking at the barplots, we obtain a distribution that approximates to normal in three out of six elements (*plaeasant, stimulating* and *exciting* show follow more or less a *normal Gaussian distribution* (Weisstein, 2019).

The three criteria (the determinant of the correlation matrix, the Bartlett test of sphericity and the Kaiser-Meyer-Olkin Measure of Sampling Accuracy) are sufficient.

Two factors have an eigenvalue above 1. These factors are even more optimal after the rotation analysis (RC1 and RC2). In the diagram below, we can observe that the variables *exciting* and *stimulating* are related to each other by certain factors, and the variables *pleasant, comfortable* and *peaceful* as well. The variables *excting* and *peaceful* are negatively related to each other to a certain degree.

Distract - The barplots show that the distribution of the items is very skewed. Most of the items result in a ceiling-effect and do not follow a normal distribution. In general, most of the items are being percevied as not distracting at all. **The elements *people* and *noise* do more or less follow a normal distribution. That means that these two items have a considerable influence on the environmental perception.**

The three criteria (the determinant of the correlation matrix, the Bartlett test of sphericity and the Kaiser-Meyer-Olkin Measure of Sampling Accuracy) are sufficient.

One factor (PC1) stands out with an eigenvalue of 4.175916761. Furthermore, the factor loadings show a factor-relation between *daylight* and *artificial light*, as well as between *colour* and *materials,* and between *people* and *nosie.*

Enjoy - The distributions in the barplots seem a bit erratic (unpredictable). Some of them (*objects, people, noise)* come close to a normal distribution.

The three criteria (the determinant of the correlation matrix, the Bartlett test of sphericity and the Kaiser-Meyer-Olkin Measure of Sampling Accuracy) are sufficient. Except for the item *noise,* that show a low MSA-value (0.47591676l) and is better to leave out from the analysis.

In this case too, one item really stands out with an eigenvalue of 3.29744297. The factor loadings show a factor-relation between *people* and *noise,* as well as between *daylight* and *artificial light.*

Variance analysis (**annex 5**)

Variance analysis is used to determine if the average scores on the researched variables show a significant difference for each category. In this analysis, the averages from the various independent factors are compared to *one* dependent variable.

The main question for the analysys of *appreciation(1)* was to discover *if* the emotional responses of the respondents *do* differ for each environment. I.e. are the specific environments being perceived differently by the respondents?

Apprecation - Both factors of appreciation (RC1 and RC2) show a significant F-value (Pr<0.01); that means that the various environment are being perceived differently. The explained variance based on the environments amounts 44% for the first factor and 34% for the second.

Distract - Both factors (RC1 and RC2), based on the distracting environmental characteristics, do not show a significant F-value. Therefore, the explained variance of the spaces is slight (a maximum of 8%).

Enjoy - The first factor (RC1), based on the pleasing environmental characteristics, show a significant F-value (Pr<0.01). The second factor (RC2), does not show a significant F-value. The first factor amounts an explained variance of 23%.

It appeared that some cases were missing in the variance analysis-calculations explained above. That means there cannot be drawn conclusions from this part of the analysis.

Multi variance analysis (**annex 6**)

This analysis measures the effects of *multiple* independent variables (factors) on the dependent variable. The main question of this part of the analysis is similar to the one of variance analysis.

The overall tests for the categories *appreciation(1)* and *distract(2)* are significant (Pr<0.05). For the category *distract(2)* we concluded that the items *people* and *noise* showed a normal distribution. A multi variance analysis-calculation that only included these two items resulted in an explained variance by the spaces itself of 23%.

The calculations of the category *enjoy(3)* did not resulted into a significant outcome.

conclusions and reflection

conclusions

The results of the experiment are compared to the hypotheses formulated in a previous chapter. The established assumptions are followed by a description to evaluate them.

Like mentioned before, the conclusions below are not solid and need further analysis in order to proof them. However, they can serve as interesting guiding lines;

C1 Valuation of the influence of the *environment* on the *emotional responses* of the perceiver;

> The Faculty of Architecture is an environment with a considerable *high level of arousal*, so the six environments will overal be perceived as *stimulating* and *exciting,* and less as *peaceful* > **considerably true**

> Crowded and/or colourful environments (*Orange Hall, Model Hall, Studio Sapce, Canteen*) will be experienced as more *stimualting* and *exciting*, and less crowded and/or colourful environments (*BK Library)* will be experienced as more *peaceful* > **considerably true**

> Since the faculty is overal a quite crowded environment, I expect that all six of the environments will be experienced as *controlling* to a certain degree > **true**

> Environmental elements as *background noise* and *presence of other people* will be experienced as very *distracting* in more crowded and noisy environments (*Orange Hall, Model Hall, Studio Space, Canteen*) **> true, in the Model Hall however not as much as in the other three spaces**

> The element of *colour* will be experienced as very *distracting* in environments where these colours are very present (*Orange Hall, Studio Space, 'in between space' below the red stairs)* > **true, in the Studio Space however not as much as in the other two spaces**

C2 Valuation of the influence of the *environment* on the *behavioural responses* of the perceiver;

> *Quiet* environments (*BK Library*) are considered as more appropriate for activities that requiere *little interaction* with the environment, compared to more *crowded and noisy* environments (*Orange Hall, Model Hall, Studio Space*) > **true**

> The perceivers will *use earplugs* more often in crowded and noisy environments (*Orange Hall, Model Hall, Canteen, Stairs*) compared to

more quiet environments (*BK Library*) > **not really, respondents would use them in every space to a great extent except for the Stairs.**

> The *Studio Space* will not be considered as a good environment to undertake activities that require less interaction with the environment (*to work individually, to meet with tutor, to think out a difficult task, to come up with new, creative ideas*) > **true**

C3 Valuation of the *personality* of the respondents;

> The respondents are often *distracted by social media* when studying/working > **true**

> *Focus* is mainly stimulated by *internal* factors - as *meditation, a good night of rest, nature, boredom* (Steijaert, 2018) > **true**

> *Creativity* is mainly stimulated by *external* factors - as *colour, brainstormsessions, media, reference projects* > **not true, either by extenal and internal factors**

Below, the hypotheses are reviewed to analyse to what degree the expected relations are distinguishable in the results (no relation / weak relation / moderate relation / strong relation / other relation);

C4 Valuation of the influence of the *personality* on the *emotional responses* of the perceiver;

> Respondents with a *lower* arousal-seeking tendency are more often distracted by environmental elements compared to respondents with a *higher* arousal-seeking tendency > **weak**

> Respondents with a *higher* arousal-seeking tendency perceive crowded and noisy spaces (*Orange Hall, Model Hall, Canteen, Stairs)* as more pleasant and comfortable compared to respondents with a *lower* arousal-seeking tendency > **weak**

> Respondents with a *lower* arousal-seeking tendency perceive peaceful and more quiet spaces (*BK Library*) as more *pleasant* and *comfortable* compared to respondents with a *higher* arousal-seeking tendency > **no, the other way around (weak to moderate)**

> Respondents with a *lower* arousal-seeking tendency experience a certain environment as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate) compared to respondents with a *higher* arousal-seeking tendency > **weak to moderate**

> If the respondent is currently *feeling better* (e.g. scores *higher* on the *current mood*-scale), he or she perceives the examined environments as more *pleasant* and *comfortable* > **weak**

> *Creativity* of respondents with a *higher* arousal-seeking tendency – extraversion – is stimulated by more *external* factors (*colour, music,*

surroundings, conversations, etc.) compared to respondents with a *lower* arousal-seeking tendency / introversion > **weak**

> *Creativity* of respondents with a *lower* arousal-seeking tendency – introvertion – is stimulated by more *internal* factors (*meditation, quietness, good night of rest*, etc.) compared to respondents with a *higher* arousal-seeking tendency / extravertion > **moderate**

C5 Valuation of the influence of the *personality* on the *behavioural responses* of the perceiver;

> Respondents with a *higher* arousal-seeking tendency are more likely to undertake any activity (e.g. have a *higher activity-rate*) in the environments > **no**

> Respondents with a *lower* arousal-seeking tendency, *prefer studying at home* over studying at the faculty, compared to respondents with a *higher* arousal-seeking tendency > **weak**

> Respondents with a *higher* arousal-seeking tendency spend more hours at the faculty compared to respondents with a *lower* arousal-seeking tendency > **weak (but respondents that have a specific mental disorder spend less hours at the faculty compared to those who have not)**

C6 Valuation of the influence of the *emotional responses* on the *behavioural responses* of the perceiver;

> If a certain environment is perceived as more *pleasant* and *comfortable*, the activity-rate in that environment is *higher* (e.g. the respondent is more willing to undertake activities in the environment concerning) > **weak to moderate**

> If a certain environment is perceived as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate), the *activity*-rate in that environment is *higher* (e.g. the respondent is more willing to undertake activities in the environment concerning) > **depends on the environment (from *weak negative* up to *moderate positive* linear correlation). An environment like the Orange Hall probably has to much arousal in order to undertake certain activities, and other environments like the Canteen and Stairs are probably too random and do not correspond well with the proposed activities.**

> If a certain environment is perceived as more *controlling*, the *activity*-rate in that environment is *higher* (e.g. the respondent is *more* willing to undertake activities in the environment concerning) > **depends on the environment (from *moderate negative* up to *weak positive* linear correlation).**

> If a certain environment is perceived as more *pleasant* and *comfortable*, the respondent is *more* willing to *work individually* in that environment > **weak to moderate (except for the Stairs, since this environment is propably not an appropriate space to work individually)**

> If a certain environment is perceived as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate), the respondent is *less* willing to *work individually* in that environment > **depends on the environment. In some environments this correlation is *very weak*. In the BK Library the correlation is visible (*weak*). In the Model Hall, the correlation is the other way around (a *higher arousal-rate* means a *lower* will to *work individually*).**

> If a certain environment is perceived as more *controlling,* the respondent is *more* willing to *work individually* in that environment > **weak to moderate (except for Stairs, which environment is probably too random to work individually).**

> If a certain environment is perceived as more *stimulating* and *exciting* and less *peaceful* (e.g. a *higher* arousal-rate), the respondent is *more* willing to undertake activities in that space that require *high interaction* with the environment > **moderate**

> If a certain environment is perceived as more *pleasant* and *comfortable*, the respondent is *more* willing to undertake activities in that space which require *high interaction* with the environment > **no / very weak**

> If a certain environment is perceived as more *controlling*, the respondent is *less* willing to undertake activities in that space which require *high interaction* with the environment > **weak**

<u>The main conclusions of the experiment that answer previously formulated research questions;</u>

> The Faculty of Architecture is an environment for extraverted people, since it is overal considered as a very stimulating and exciting environment and not very peaceful. This conclusion is supported by the fact that the building is also considered as a very interactive environment, since respondents find the space appropriate to *feel friendly and talkative to others,* to *explore around* and to *have conversations / small talk.* The building is also perceived as a quite pleasant environment and only a small percentage of the respondents prefers to study at home over studying at the faculty.

> *Daylight* and *spatial measurements* is overal considered as very pleasing in the six environments.

> *Background noise* and *the presence of other people* is overal considered as very distracting in the six environments. Respondents would like to use earplugs in almost al of the environments to block these distractions. The element of *colour* is considered as distracting when this is very present in the environment concerning.

> The Studio Space is not considered as a good environment to *work individually,* to *give presentations,* to *think out a difficult task* or to *come up with new, creative ideas.* This is worrisome, since this is nowadays the designated space for those activities. Only the BK Library is considered as an appropriate environment to *work individually.*

> Focus is mainly stimulated by *internal factors*. Creativity of *e*xtraverted people is more stimulated by *external factors* and creativity of introverted people is more stimulated by *internal factors.*

> Respondents that are more *introverted*, consider a specific environment as more *stimulating* and *exciting* and less *peaceful*. They also prefer to study at home compared to more *extraverted* people.

> If an environment is perceived as more *pleasant,* than the person concerning prefers to *work individually* in that environment.
If an environment is perceived as more *stimulating* and *exciting* and less *peaceful*, than the person concerning prefers to undertake activities in that environment which require *high interaction* with other people and the space itself.
If an environment is perceived as more *controlling,* than the person concerning prefers to *work individually* in that environment.

> The calculations carried out by Gust Mariën (principal component analysis, variance analysis and multi variance analysis) show that mainly the environmental elements *presence of other people* and *background noise* are relevant in the environmental perception of the spaces.

> However, the most important conclusion that can be drawn from the experiment is that everyone perceives an environment differently. Therefore, a building should serve every user, instead of designing for the average person.

recommendations and reflection

For further research, I would suggest the following recommendations;

> Shorten the completion time of the experiment. It took quite some time (about 20 minutes) to complete the interactive survey I developed. This could be a threshold for respondents to participate in it. For next time, I would recommend shortening it to a maximum of 5 minutes. In this way, a lot more responses will be gathered, so that there can be drawn more solid conclusions from it.

> Focus on study environments only. Some of the environments I selected were probably too random and did not always correspond well with the proposed activities. I chose to do so because I wanted to create a well-presented overview of the whole building. However, for next time I would recommend focusing on 'real' study environments only, to ease the comparisons and to draw more solid conclusions.

> This research showed that the dimension of dominance *should* indeed be included in further research to create a complete range of human responses, as proposed in the *theory and literature* chapter.

> Make the element of *background noise* less present. This element was probably too present in the videos of the six environments I created, since it was considered as very distracting in all of the environments. This was after all the way how *I* experienced these environments. However, this way of

presenting the environments is presumably too subjective. Developing a more objective manner to display these environments is recommended.

> The influence of the arousal-seeking tendency on the emotional and behavioural responses of the participants was less than expected. In future research, the ten statements that were developed to measure this arousal-seeking tendency should be reconsidered, to create a more representative measuring system.

Some additional reflections on the research carried out;

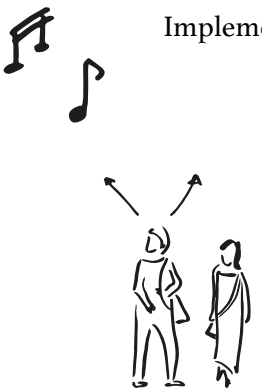
> In order to set up the experiment and to be able to draw conclusions from it, I had to make some assumptions on the environment concerning. E.g. *the BK Library is a quiet space, the Orange Hall and Model Hall are crowded and noisy spaces, the Orange Hall has too much arousal.* All of these assumptions are based on the hypotheses I drew up, although can be considered as subjective.

> While analysing the results, I combined several variables in a few cases. E.g. the *activity-rate* (all the proposed activities combined), the *arousal-rate* (the degree in which an environment was perceived as stimulating *and* exciting and *not* peaceful), the *interaction-rate* (the respondent's will to undertake activities in a certain environment that require interaction with other people and the space itself). The reason for this was to discover the broader lines and broader relations between the variables. However, it is also possible that the variables involved cancel each other out.

design input

The findings of the experiment and literature study led to some useful input that can serve as guidelines for future design. Literature that I studied to develop the experiment and design input, besides the previously named scientific articles, are;
> *Brain Rules,* J. Medina (2014)
> *Mind in Architecture,* S. Robinson and J. Pallasmaa (2017)
> *The Architect's Brain – Neuroscience, Creativity, and Architecture,* H.F. Mallgrave (2011)
> *Welcome to Your World – How the Built Environment Shapes Our Lives,* S. Williams Goldhagen (2017)

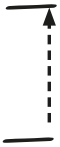
<u>A short elaboration on the developed design input is given below;</u>



Implement acoustic insulation - walls, panels, tables

Maximise daylight, limit blue light after 5/6 pm

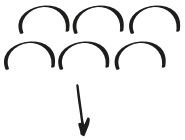
Be aware of the presence of other people - is experienced as distracting but is also desired, try to find a balance in this (see experiment results)



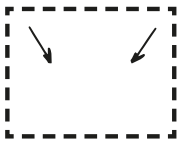
Design spaces with high ceilings - is being perceived as very pleasant by students and stimulates creativity (see experiment results)

Be careful with colours, too bright and too present can be distracting. Also take into account the psychological effects of colours – grey is calming, orange is stimulating (TMD Studio, 2017)

Create space for interaction – it stimulates creativity (Fuzi, Clifton, & Loudon, 2014)

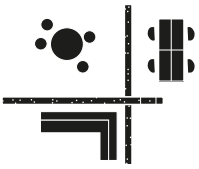


Create appropriate space for presentations – for example by using adaptable walls and elements

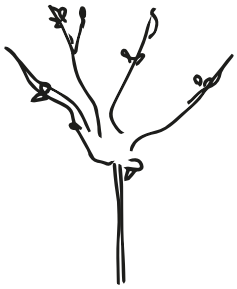


Design a 'room of boredom', a box, without internet, no distractions – to stimulate focus and creativity (also for meditation)
(Steijaert, 2018)

Create engaging break spots – to stimulate that students take a break at least every 1.5 hours



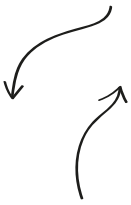
Make individual workspace flexible, adaptable and measurable - based on a person's needs (in terms of noise, vision, distractions, lights, temperature, mood, etc.)



Implement nature (e.g. courtyards) in the design – this stimulates cognitive performances, creativity and well-being (Chowdhury, 2019)

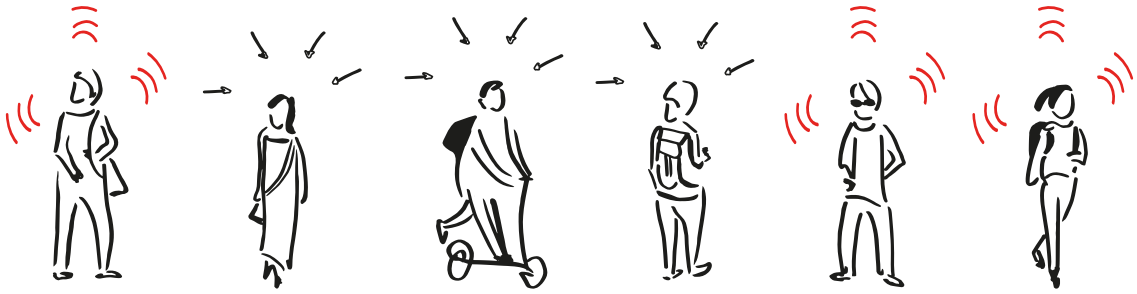
Create an exposition space – many students get inspired by other reference project to stimulate their creativity (see experiment results)

Create 'napping zones' – taking afternoon naps is beneficial for productivity (Medina, 2014)



Stimulate movement (outside and within) – this stimulates well-being, health, creativity and focus (Medina, 2014)

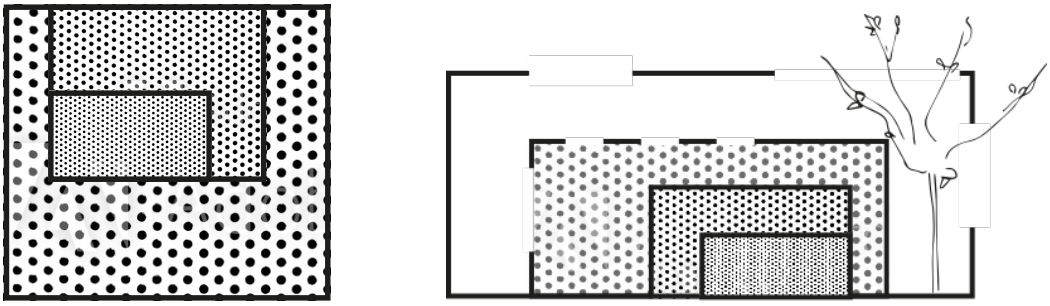
Implement Smart Building-technologies – to improve user comfort



Most importantly;

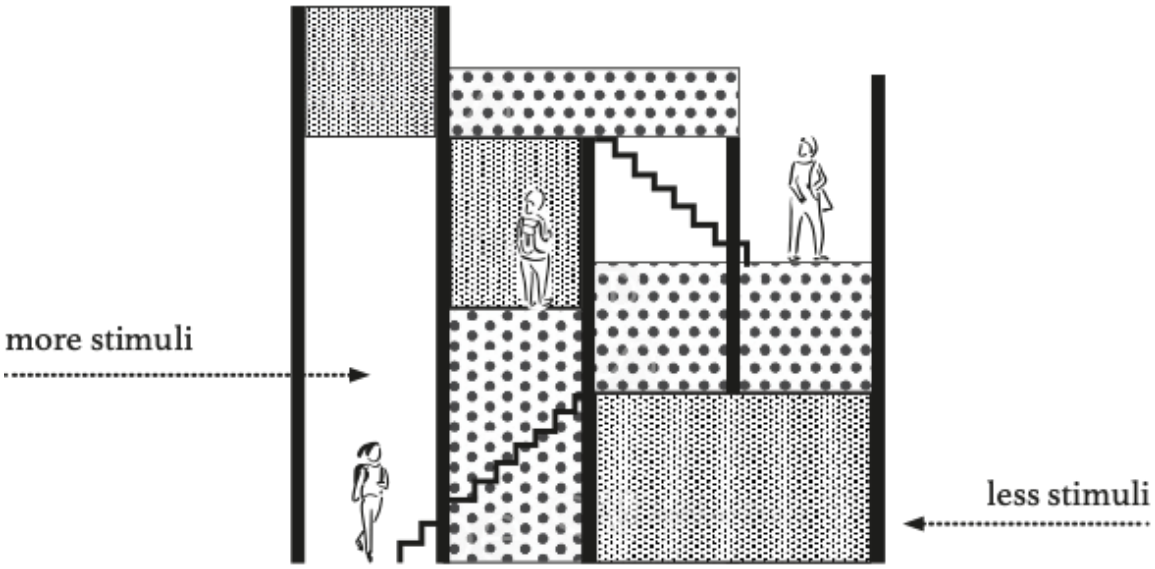
Take into account that every individual perceives a space differently and reacts differently to environmental stimuli. Implement this varying demand for environmental stimuli in the building/environment, based on a individual's needs. Serve the user by making this gradation of stimuli available in the building/environment.

A stimulating space is an environment that stimulates a person's way of working, thinking and being, whether it is stimulated by internal or external factors.



plan section

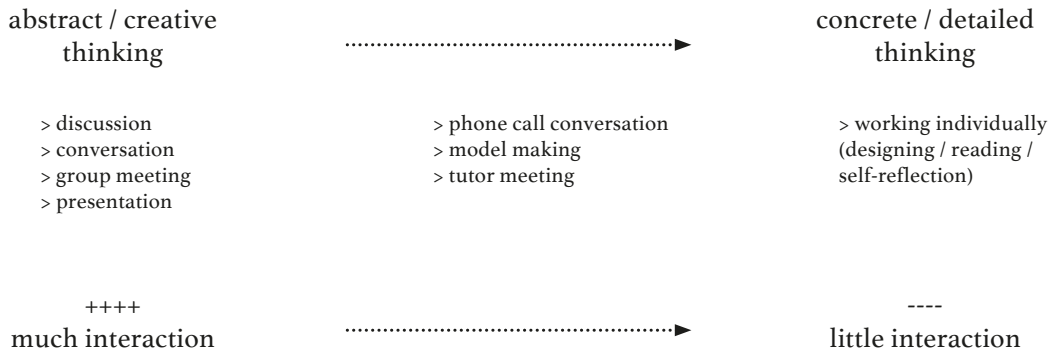
Figure 8 - A gradation of environmental stimuli - students build their workspace within this gradation



The directive design process;

Since the research carried out was mainly focused on actions related to the design process, the future environment to be designed could be based on this follow up of activities. The various activities related to this design process that were investigated and tested in the experiment are ordered below from activities that require much interaction up to activities that require much interaction with other people or the space itself. This sequence is similar to the design process of students over time – it starts with abstract / creative thinking, and it ends with concrete / detailed thinking.

A new design for a creative learning environment will accommodate all of these functions, by offering these in a gradation of spaces (ordered from little interaction / less environmental stimuli up to much interaction / more environmental stimuli).



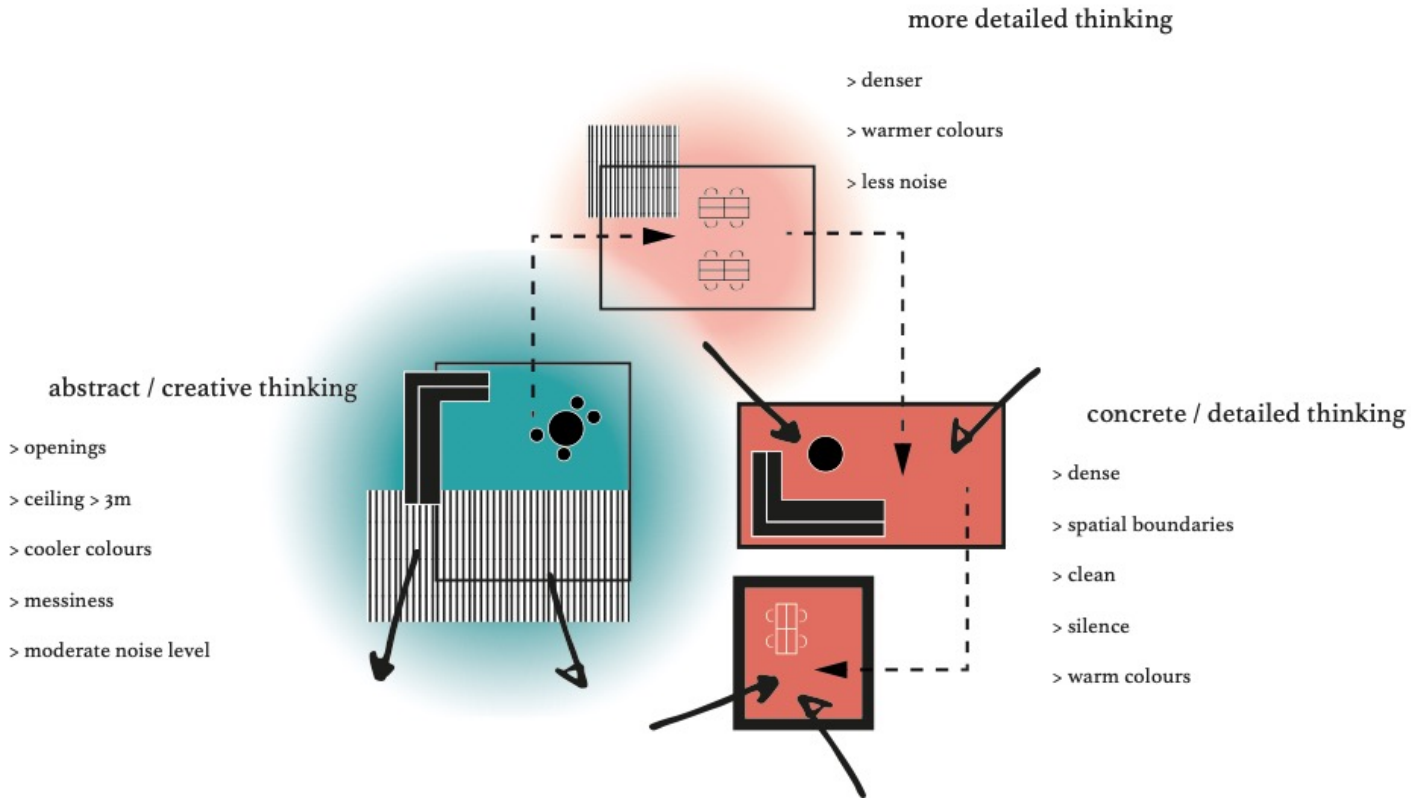


Figure 9 – A building or environment follows the sequence of the design process (own image)

The aforementioned design-process related activities are translated into a gradual interaction scale;

++ interaction / discussion / creation / presentation / relaxation / inspiration / concentration / reflection / meditation - -

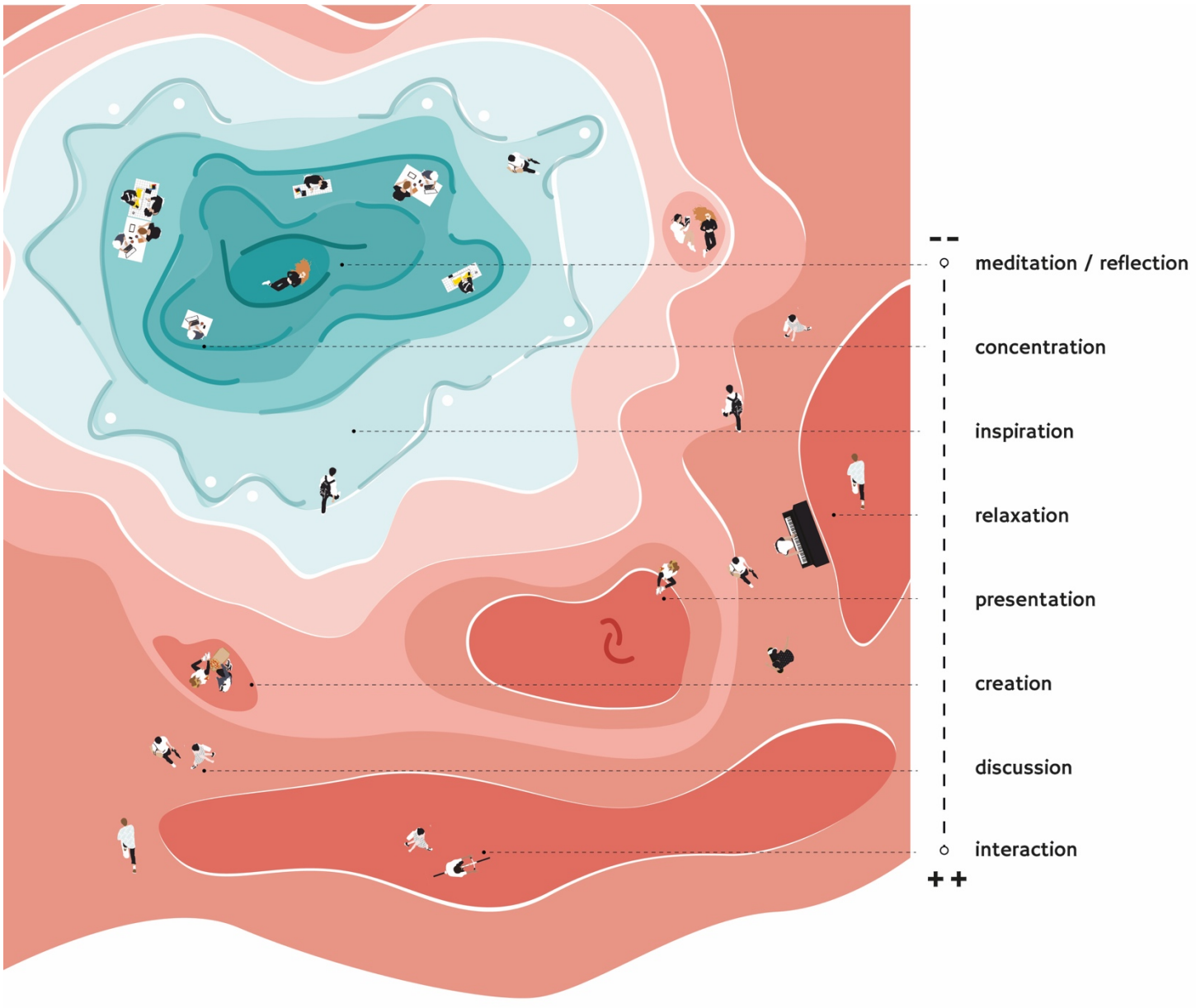


Figure 10 – A gradation of spaces (own image)

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annex 1

- full list of questions and answers of both versions of the survey (123 + ABC)

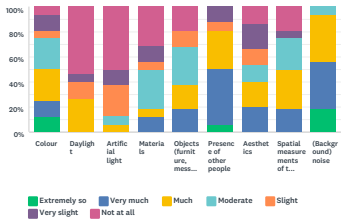
Q1 Please rate the following six statements.I consider 'environment 1' as ...

Answered: 16 Skipped: 0

	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
pleasant	0.00% 0	6.25% 1	50.00% 8	12.50% 2	12.50% 2	12.50% 2	6.25% 1	16
comfortable	0.00% 0	6.25% 1	25.00% 4	6.25% 1	37.50% 6	25.00% 4	0.00% 0	16
stimulating	0.00% 0	37.50% 6	25.00% 4	6.25% 1	12.50% 2	18.75% 3	0.00% 0	16
exciting	6.25% 1	43.75% 7	25.00% 4	18.75% 3	6.25% 1	0.00% 0	0.00% 0	16
peaceful	0.00% 0	0.00% 0	0.00% 0	0.00% 0	37.50% 6	31.25% 5	31.25% 5	16
controlling(I feel that I should behave in a certain way according to the environment or other present people)	12.50% 2	25.00% 4	37.50% 6	12.50% 2	6.25% 1	6.25% 1	0.00% 0	16

Q2 Which of the following elements in 'environment 1' do you find distracting?

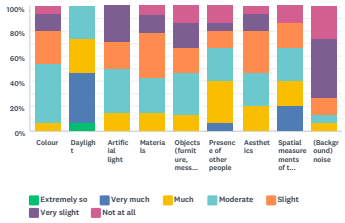
Answered: 16 Skipped: 0



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	12.50% 2	12.50% 2	25.00% 4	25.00% 4	6.25% 1	12.50% 2	6.25% 1	16
Daylight	0.00% 0	0.00% 0	26.67% 4	0.00% 0	13.33% 2	6.67% 1	53.33% 8	15
Artificial light	0.00% 0	0.00% 0	6.25% 1	6.25% 1	25.00% 4	12.50% 2	50.00% 8	16
Materials	0.00% 0	12.50% 2	6.25% 1	31.25% 5	6.25% 1	12.50% 2	31.25% 5	16
Objects (furniture, messiness)	0.00% 0	18.75% 3	18.75% 3	31.25% 5	12.50% 2	0.00% 0	18.75% 3	16
Presence of other people	6.25% 1	43.75% 7	31.25% 5	0.00% 0	6.25% 1	12.50% 2	0.00% 0	16
Aesthetics	0.00% 0	20.00% 3	20.00% 3	13.33% 2	13.33% 2	20.00% 3	13.33% 2	15
Spatial measurements of the environment	0.00% 0	18.75% 3	31.25% 5	25.00% 4	0.00% 0	6.25% 1	18.75% 3	16
(Background) noise	18.75% 3	37.50% 6	37.50% 6	6.25% 1	0.00% 0	0.00% 0	0.00% 0	16

Q3 Which of the following elements in 'environment 1' do you find pleasing?

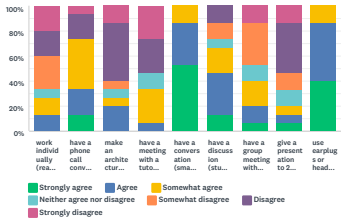
Answered: 15 Skipped: 1



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	0.00% 0	6.67% 1	46.67% 7	26.67% 4	13.33% 2	6.67% 1	15
Daylight	6.67% 1	40.00% 6	26.67% 4	26.67% 4	0.00% 0	0.00% 0	0.00% 0	15
Artificial light	0.00% 0	0.00% 0	14.29% 2	35.71% 5	21.43% 3	28.57% 4	0.00% 0	14
Materials	0.00% 0	0.00% 0	14.29% 2	28.57% 4	35.71% 5	14.29% 2	7.14% 1	14
Objects (furniture, messiness)	0.00% 0	0.00% 0	13.33% 2	33.33% 5	20.00% 3	20.00% 3	13.33% 2	15
Presence of other people	0.00% 0	6.67% 1	33.33% 5	26.67% 4	13.33% 2	6.67% 1	13.33% 2	15
Aesthetics	0.00% 0	0.00% 0	20.00% 3	26.67% 4	33.33% 5	13.33% 2	6.67% 1	15
Spatial measurements of the environment	0.00% 0	20.00% 3	20.00% 3	26.67% 4	20.00% 3	0.00% 0	13.33% 2	15
(Background) noise	0.00% 0	0.00% 0	6.67% 1	6.67% 1	13.33% 2	46.67% 7	26.67% 4	15

Q4 Please rate the statements.In the situation of 'environment 1', I would like to ...

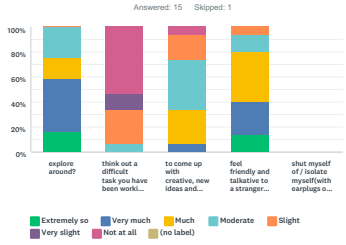
Answered: 15 Skipped: 1



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
work individually (reading / designing / self-reflection)	0.00% 0	13.33% 2	13.33% 2	6.67% 1	26.67% 4	20.00% 3	20.00% 3	15
have a phone call conversation	13.33% 2	20.00% 3	40.00% 6	0.00% 0	0.00% 0	20.00% 3	6.67% 1	15
make an architectural model	0.00% 0	20.00% 3	6.67% 1	6.67% 1	6.67% 1	46.67% 7	13.33% 2	15
have a meeting with a tutor (1 to 1 tutorial)	0.00% 0	6.67% 1	26.67% 4	13.33% 2	0.00% 0	26.67% 4	26.67% 4	15
have a conversation (small talk, not necessarily study-related) with 2-3 persons	53.33% 8	33.33% 5	13.33% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
have a discussion (study-related) with 3-8 persons	13.33% 2	33.33% 5	20.00% 3	6.67% 1	13.33% 2	13.33% 2	0.00% 0	15
have a group meeting with 8-15 persons	6.67% 1	13.33% 2	20.00% 3	13.33% 2	33.33% 5	0.00% 0	13.33% 2	15
give a presentation to 2-15 people	6.67% 1	6.67% 1	6.67% 1	13.33% 2	13.33% 2	40.00% 6	13.33% 2	15
use earplugs or headphones to block the distracting noises	40.00% 6	46.67% 7	13.33% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15

Q5 The following questions are related to 'environment 1'.To what extend is this situation a good environment to ...

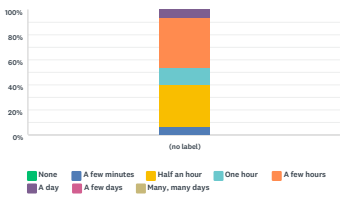
Answered: 15 Skipped: 1



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	(NO LABEL)	TOTAL
explore around?	16.67% 2	41.67% 5	16.67% 2	25.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	12
think out a difficult task you have been working on?	0.00% 0	0.00% 0	0.00% 0	6.67% 1	26.67% 4	13.33% 2	53.33% 8	0.00% 0	15
to come up with creative, new ideas and concepts?	0.00% 0	6.67% 1	26.67% 4	40.00% 6	20.00% 3	0.00% 0	6.67% 1	0.00% 0	15
feel friendly and talkative to a stranger who happens to be near you?	13.33% 2	26.67% 4	40.00% 6	13.33% 2	6.67% 1	0.00% 0	0.00% 0	0.00% 0	15
shut myself of / isolate myself(with earplugs or headphones)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0

Q6 How much time would you like to spend in 'environment 1'?

Answered: 15 Skipped: 1



	NONE	A FEW MINUTES	HALF AN HOUR	ONE HOUR	A FEW HOURS	A DAY	A FEW DAYS	MANY, MANY DAYS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	6.67% 1	33.33% 5	13.33% 2	40.00% 6	6.67% 1	0.00% 0	0.00% 0	15	1.00

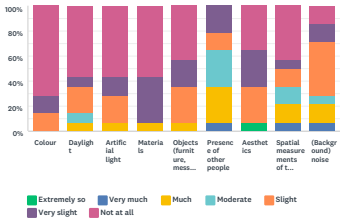
Q7 Please rate the following six statements.I consider 'environment 2' as ...

Answered: 14 Skipped: 2

	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
pleasant	0.00% 0	50.00% 7	35.71% 5	0.00% 0	7.14% 1	7.14% 1	0.00% 0	14
comfortable	0.00% 0	35.71% 5	28.57% 4	21.43% 3	7.14% 1	7.14% 1	0.00% 0	14
stimulating	0.00% 0	28.57% 4	21.43% 3	7.14% 1	35.71% 5	7.14% 1	0.00% 0	14
exciting	0.00% 0	7.14% 1	7.14% 1	7.14% 1	35.71% 5	35.71% 5	7.14% 1	14
peaceful	14.29% 2	50.00% 7	14.29% 2	7.14% 1	7.14% 1	7.14% 1	0.00% 0	14
controlling(I feel that I should behave in a certain way according to the environment or other present people)	28.57% 4	35.71% 5	14.29% 2	7.14% 1	14.29% 2	0.00% 0	0.00% 0	14

Q8 Which of the following elements in 'environment 2' do you find distracting?

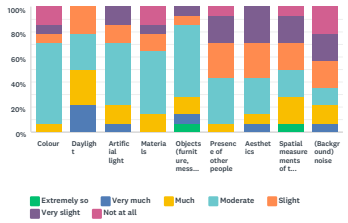
Answered: 14 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 2	14.29% 2	71.43% 10	14
Daylight	0.00% 0	0.00% 0	7.14% 1	7.14% 1	21.43% 3	7.14% 1	57.14% 8	14
Artificial light	0.00% 0	0.00% 0	7.14% 1	0.00% 0	21.43% 3	14.29% 2	57.14% 8	14
Materials	0.00% 0	0.00% 0	7.14% 1	0.00% 0	0.00% 0	35.71% 5	57.14% 8	14
Objects (furniture, messiness)	0.00% 0	0.00% 0	7.14% 1	0.00% 0	28.57% 4	21.43% 3	42.86% 6	14
Presence of other people	0.00% 0	7.14% 1	28.57% 4	28.57% 4	14.29% 2	21.43% 3	0.00% 0	14
Aesthetics	7.14% 1	0.00% 0	0.00% 0	0.00% 0	28.57% 4	28.57% 4	35.71% 5	14
Spatial measurements of the environment	0.00% 0	7.14% 1	14.29% 2	14.29% 2	14.29% 2	7.14% 1	42.86% 6	14
(Background) noise	0.00% 0	7.14% 1	14.29% 2	7.14% 1	42.86% 6	14.29% 2	14.29% 2	14

Q9 Which of the following elements in 'environment 2' do you find pleasing?

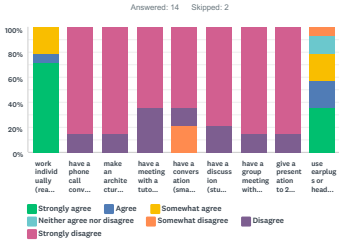
Answered: 14 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	0.00% 0	7.14% 1	64.29% 9	7.14% 1	7.14% 1	14.29% 2	14
Daylight	0.00% 0	21.43% 3	28.57% 4	28.57% 4	21.43% 3	0.00% 0	0.00% 0	14
Artificial light	0.00% 0	7.14% 1	14.29% 2	50.00% 7	14.29% 2	14.29% 2	0.00% 0	14
Materials	0.00% 0	0.00% 0	14.29% 2	50.00% 7	14.29% 2	7.14% 1	14.29% 2	14
Objects (furniture, messiness)	7.14% 1	7.14% 1	14.29% 2	57.14% 8	7.14% 1	7.14% 1	0.00% 0	14
Presence of other people	0.00% 0	0.00% 0	7.14% 1	35.71% 5	28.57% 4	21.43% 3	7.14% 1	14
Aesthetics	0.00% 0	7.14% 1	7.14% 1	28.57% 4	28.57% 4	28.57% 4	0.00% 0	14
Spatial measurements of the environment	7.14% 1	0.00% 0	21.43% 3	21.43% 3	21.43% 3	21.43% 3	7.14% 1	14
(Background) noise	0.00% 0	7.14% 1	14.29% 2	14.29% 2	21.43% 3	21.43% 3	21.43% 3	14

Q10 The following eight statements all contain activities which are related to the design process of students in academic environments. Please rate the statements.In the situation of 'environment 2', I would like to ...

Answered: 14 Skipped: 2

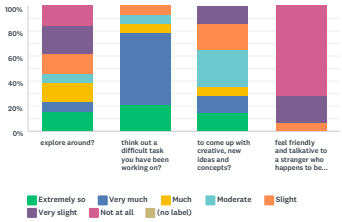


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
work individually (reading / designing / self-reflection)	71.43% 10	7.14% 1	21.43% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14
have a phone call conversation	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 2	85.71% 12	14
make an architectural model	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 2	85.71% 12	14
have a meeting with a tutor (1 to 1 tutorial)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	35.71% 5	64.29% 9	14
have a conversation (small talk, not necessarily study-related) with 2-3 persons	0.00% 0	0.00% 0	0.00% 0	0.00% 0	21.43% 3	14.29% 2	64.29% 9	14
have a discussion (study-related) with 3-8 persons	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	21.43% 3	78.57% 11	14
have a group meeting with 8-15 persons	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 2	85.71% 12	14
give a presentation to 2-15 people	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 2	85.71% 12	14

use earplugs or headphones to block the distracting noises	35.71% 5	21.43% 3	21.43% 3	14.29% 2	7.14% 1	0.00% 0	0.00% 0	14

Q11 The following questions are related to 'environment 2'.To what extend is this situation a good environment to ...

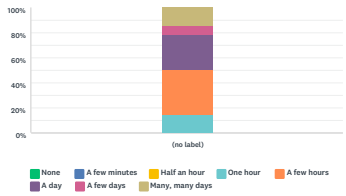
Answered: 14 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	(NO LABEL)	TOTAL
explore around?	15.38% 2	7.69% 1	15.38% 2	7.69% 1	15.38% 2	23.08% 3	15.38% 2	0.00% 0	13
think out a difficult task you have been working on?	21.43% 3	57.14% 8	7.14% 1	7.14% 1	7.14% 1	0.00% 0	0.00% 0	0.00% 0	14
to come up with creative, new ideas and concepts?	14.29% 2	14.29% 2	7.14% 1	28.57% 4	21.43% 3	14.29% 2	0.00% 0	0.00% 0	14
feel friendly and talkative to a stranger who happens to be near you?	0.00% 0	0.00% 0	0.00% 0	0.00% 0	7.14% 1	21.43% 3	71.43% 10	0.00% 0	14

Q12 How much time would you like to spend in 'environment 2'?

Answered: 14 Skipped: 2



	NONE	A FEW MINUTES	HALF AN HOUR	ONE HOUR	A FEW HOURS	A DAY	A FEW DAYS	MANY, MANY DAYS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	0.00% 0	14.29% 2	35.71% 5	28.57% 4	7.14% 1	14.29% 2	14	1.00

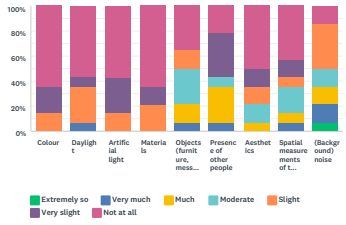
Q13 Please rate the following six statements.I consider 'environment 3' as ...

Answered: 14 Skipped: 2

	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
pleasant	0.00% 0	50.00% 7	21.43% 3	7.14% 1	7.14% 1	7.14% 1	7.14% 1	14
comfortable	0.00% 0	7.14% 1	14.29% 2	21.43% 3	21.43% 3	21.43% 3	14.29% 2	14
stimulating	21.43% 3	42.86% 6	21.43% 3	14.29% 2	0.00% 0	0.00% 0	0.00% 0	14
exciting	28.57% 4	50.00% 7	7.14% 1	7.14% 1	0.00% 0	0.00% 0	7.14% 1	14
peaceful	0.00% 0	0.00% 0	7.14% 1	0.00% 0	14.29% 2	35.71% 5	42.86% 6	14
controlling(I feel that I should behave in a certain way according to the environment or other present people)	0.00% 0	14.29% 2	21.43% 3	14.29% 2	14.29% 2	35.71% 5	0.00% 0	14

Q14 Which of the following elements in 'environment 3' do you find distracting?

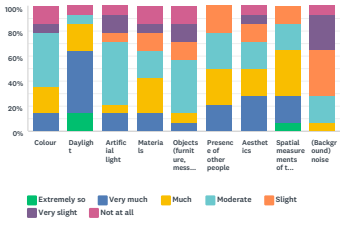
Answered: 14 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 2	21.43% 3	64.29% 9	14
Daylight	0.00% 0	7.14% 1	0.00% 0	0.00% 0	28.57% 4	7.14% 1	57.14% 8	14
Artificial light	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14.29% 2	28.57% 4	57.14% 8	14
Materials	0.00% 0	0.00% 0	0.00% 0	0.00% 0	21.43% 3	14.29% 2	64.29% 9	14
Objects (furniture, messiness)	0.00% 0	7.14% 1	14.29% 2	28.57% 4	14.29% 2	0.00% 0	35.71% 5	14
Presence of other people	0.00% 0	7.14% 1	28.57% 4	7.14% 1	0.00% 0	35.71% 5	21.43% 3	14
Aesthetics	0.00% 0	0.00% 0	7.14% 1	14.29% 2	14.29% 2	14.29% 2	50.00% 7	14
Spatial measurements of the environment	0.00% 0	7.14% 1	7.14% 1	21.43% 3	7.14% 1	14.29% 2	42.86% 6	14
(Background) noise	7.14% 1	14.29% 2	14.29% 2	14.29% 2	35.71% 5	0.00% 0	14.29% 2	14

Q15 Which of the following elements in 'environment 3' do you find pleasing?

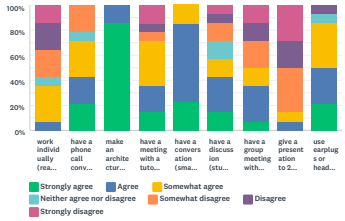
Answered: 14 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	14.29% 2	21.43% 3	42.86% 6	0.00% 0	7.14% 1	14.29% 2	14
Daylight	14.29% 2	50.00% 7	21.43% 3	7.14% 1	0.00% 0	0.00% 0	7.14% 1	14
Artificial light	0.00% 0	14.29% 2	7.14% 1	50.00% 7	7.14% 1	14.29% 2	7.14% 1	14
Materials	0.00% 0	14.29% 2	28.57% 4	21.43% 3	14.29% 2	7.14% 1	14.29% 2	14
Objects (furniture, messiness)	0.00% 0	7.14% 1	7.14% 1	42.86% 6	14.29% 2	14.29% 2	14.29% 2	14
Presence of other people	0.00% 0	21.43% 3	28.57% 4	28.57% 4	21.43% 3	0.00% 0	0.00% 0	14
Aesthetics	0.00% 0	28.57% 4	21.43% 3	21.43% 3	14.29% 2	7.14% 1	7.14% 1	14
Spatial measurements of the environment	7.14% 1	21.43% 3	35.71% 5	21.43% 3	14.29% 2	0.00% 0	0.00% 0	14
(Background) noise	0.00% 0	0.00% 0	7.14% 1	21.43% 3	35.71% 5	28.57% 4	7.14% 1	14

Q16 The following eight statements all contain activities which are related to the design process of students in academic environments. Please rate the statements.In the situation of 'environment 3', I would like to ...

Answered: 14 Skipped: 2

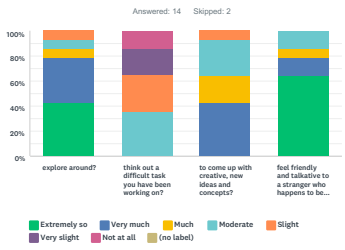


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
work individually (reading / designing / self-reflection)	0.00% 0	7.14% 1	28.57% 4	7.14% 1	21.43% 3	21.43% 3	14.29% 2	14
have a phone call conversation	21.43% 3	21.43% 3	28.57% 4	7.14% 1	21.43% 3	0.00% 0	0.00% 0	14
make an architectural model	85.71% 12	14.29% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14
have a meeting with a tutor (1 to 1 tutorial)	14.29% 2	21.43% 3	35.71% 5	0.00% 0	7.14% 1	7.14% 1	14.29% 2	14
have a conversation (small talk, not necessarily study-related) with 2-3 persons	23.08% 3	61.54% 8	15.38% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	13
have a discussion (study-related) with 3-8 persons	14.29% 2	28.57% 4	14.29% 2	14.29% 2	14.29% 2	7.14% 1	7.14% 1	14
have a group meeting with 8-15 persons	7.14% 1	28.57% 4	14.29% 2	0.00% 0	21.43% 3	14.29% 2	14.29% 2	14
give a presentation to 2-15 people	0.00% 0	7.14% 1	7.14% 1	0.00% 0	35.71% 5	21.43% 3	28.57% 4	14

use earplugs or headphones to block the distracting noises	21.43% 3	28.57% 4	35.71% 5	7.14% 1	0.00% 0	7.14% 1	0.00% 0	14

Q17 The following questions are related to 'environment 3'.To what extend is this situation a good environment to ...

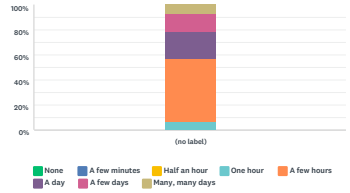
Answered: 14 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	(NO LABEL)	TOTAL
explore around?	42.86% 6	35.71% 5	7.14% 1	7.14% 1	7.14% 1	0.00% 0	0.00% 0	0.00% 0	14
think out a difficult task you have been working on?	0.00% 0	0.00% 0	0.00% 0	35.71% 5	28.57% 4	21.43% 3	14.29% 2	0.00% 0	14
to come up with creative, new ideas and concepts?	0.00% 0	42.86% 6	21.43% 3	28.57% 4	7.14% 1	0.00% 0	0.00% 0	0.00% 0	14
feel friendly and talkative to a stranger who happens to be near you?	64.29% 9	14.29% 2	7.14% 1	14.29% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14

Q18 How much time would you like to spend in 'environment 3'?

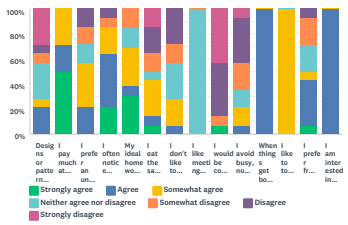
Answered: 14 Skipped: 2



	NONE	A FEW MINUTES	HALF AN HOUR	ONE HOUR	A FEW HOURS	A DAY	A FEW DAYS	MANY, MANY DAYS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	0.00% 0	7.14% 1	50.00% 7	21.43% 3	14.29% 2	7.14% 1	14	1.00

Q19 Please rate the following statements related to your personality or character.

Answered: 14 Skipped: 2

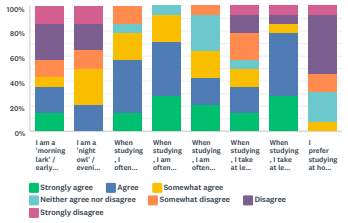


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
Designs or patterns should be bold and exciting	0.00% 0	21.43% 3	7.14% 1	28.57% 4	7.14% 1	7.14% 1	28.57% 4	14
I pay much attention to my surroundings	50.00% 7	21.43% 3	28.57% 4	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14
I prefer an unpredictable life that is full of change to a more routine one	0.00% 0	21.43% 3	35.71% 5	14.29% 2	14.29% 2	14.29% 2	0.00% 0	14
I often notice textures	21.43% 3	42.86% 6	21.43% 3	0.00% 0	7.14% 1	7.14% 1	0.00% 0	14
My ideal home would be peaceful and quiet	30.77% 4	7.69% 1	30.77% 4	15.38% 2	15.38% 2	0.00% 0	0.00% 0	13
I eat the same kind of food most of the time	7.14% 1	7.14% 1	28.57% 4	7.14% 1	14.29% 2	21.43% 3	14.29% 2	14
I don't like to have lots of activity around me	0.00% 0	7.14% 1	21.43% 3	28.57% 4	14.29% 2	28.57% 4	0.00% 0	14
I like meeting people who give me new ideas	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1

I would be content to live in the same town for the rest of my life	7.14% 1	0.00% 0	0.00% 0	0.00% 0	7.14% 1	42.86% 6	42.86% 6	14
I avoid busy, noisy places	0.00% 0	7.14% 1	14.29% 2	14.29% 2	21.43% 3	35.71% 5	7.14% 1	14
When things get boring, I like to find some new and unfamiliar experience	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1
I like to touch and feel a sculpture	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1
I prefer friends who are reliable and predictable to those who are excitingly unpredictable	7.14% 1	35.71% 5	7.14% 1	21.43% 3	21.43% 3	7.14% 1	0.00% 0	14
I am interested in new and varied interpretations of different art forms	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	1

Q20 Please rate the following statements related to your habits and personality.

Answered: 14 Skipped: 2

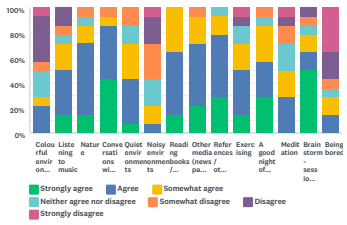


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
I am a 'morning lark' / early bird(I get up early in the morning and go to bed early in the evening. I feel most energetic in the morning just after I get up)	14.29% 2	21.43% 3	7.14% 1	0.00% 0	14.29% 2	28.57% 4	14.29% 2	14
I am a 'night owl' / evening person(I tend to stay up until late at night, or the early hours of the morning. I feel most energetic just before I go to sleep)	0.00% 0	21.43% 3	28.57% 4	0.00% 0	14.29% 2	21.43% 3	14.29% 2	14
When studying, I often switch tasks	14.29% 2	42.86% 6	21.43% 3	7.14% 1	14.29% 2	0.00% 0	0.00% 0	14
When studying, I am often distracted by social media / my smartphone (or other mobile devices)	28.57% 4	42.86% 6	21.43% 3	7.14% 1	0.00% 0	0.00% 0	0.00% 0	14

When studying, I am often distracted by noises / other people / activities around me	21.43% 3	21.43% 3	21.43% 3	28.57% 4	7.14% 1	0.00% 0	0.00% 0	14
When studying, I take at least one break every 1.5 hours of working	14.29% 2	21.43% 3	14.29% 2	7.14% 1	21.43% 3	14.29% 2	7.14% 1	14
When studying, I take at least one break every 4 hours of working	28.57% 4	50.00% 7	7.14% 1	0.00% 0	0.00% 0	7.14% 1	7.14% 1	14
I prefer studying at home over studying at the university	0.00% 0	0.00% 0	7.69% 1	23.08% 3	15.38% 2	46.15% 6	7.69% 1	13

Q21 What stimulates your creativity?

Answered: 14 Skipped: 2

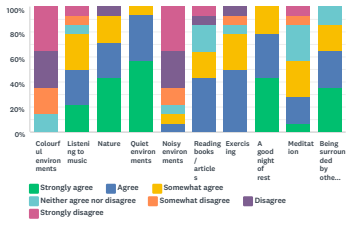


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
Colourful environments	0.00% 0	21.43% 3	7.14% 1	21.43% 3	7.14% 1	35.71% 5	7.14% 1	14
Listening to music	14.29% 2	35.71% 5	21.43% 3	7.14% 1	7.14% 1	14.29% 2	0.00% 0	14
Nature	14.29% 2	57.14% 8	14.29% 2	7.14% 1	7.14% 1	0.00% 0	0.00% 0	14
Conversations with other people	42.86% 6	42.86% 6	7.14% 1	0.00% 0	7.14% 1	0.00% 0	0.00% 0	14
Quiet environments	7.14% 1	35.71% 5	28.57% 4	14.29% 2	14.29% 2	0.00% 0	0.00% 0	14
Noisy environments	0.00% 0	7.14% 1	14.29% 2	21.43% 3	28.57% 4	21.43% 3	7.14% 1	14
Reading books / articles	14.29% 2	50.00% 7	35.71% 5	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14
Other media (newspaper, documentaries, movies, podcasts)	21.43% 3	50.00% 7	21.43% 3	0.00% 0	7.14% 1	0.00% 0	0.00% 0	14
References / other projects	28.57% 4	50.00% 7	14.29% 2	7.14% 1	0.00% 0	0.00% 0	0.00% 0	14
Exercising	14.29% 2	35.71% 5	21.43% 3	14.29% 2	0.00% 0	7.14% 1	7.14% 1	14
A good night of rest	28.57% 4	28.57% 4	28.57% 4	7.14% 1	7.14% 1	0.00% 0	0.00% 0	14
Meditation	0.00% 0	28.57% 4	21.43% 3	21.43% 3	14.29% 2	7.14% 1	7.14% 1	14

Brainstorm-sessions with other people	50.00% 7	14.29% 2	14.29% 2	7.14% 1	7.14% 1	7.14% 1	0.00% 0	14
Being bored	0.00% 0	14.29% 2	14.29% 2	7.14% 1	7.14% 1	21.43% 3	35.71% 5	14

Q22 What stimulates your concentration (focus)?

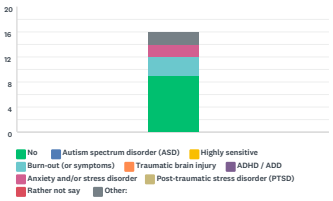
Answered: 14 Skipped: 2



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
Colourful environments	0.00% 0	0.00% 0	0.00% 0	14.29% 2	21.43% 3	28.57% 4	35.71% 5	14
Listening to music	21.43% 3	28.57% 4	28.57% 4	7.14% 1	7.14% 1	0.00% 0	7.14% 1	14
Nature	42.86% 6	28.57% 4	21.43% 3	0.00% 0	0.00% 0	7.14% 1	0.00% 0	14
Quiet environments	57.14% 8	35.71% 5	7.14% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14
Noisy environments	0.00% 0	7.14% 1	7.14% 1	7.14% 1	14.29% 2	28.57% 4	35.71% 5	14
Reading books / articles	0.00% 0	42.86% 6	21.43% 3	21.43% 3	0.00% 0	7.14% 1	7.14% 1	14
Exercising	0.00% 0	50.00% 7	28.57% 4	7.14% 1	7.14% 1	7.14% 1	0.00% 0	14
A good night of rest	42.86% 6	35.71% 5	21.43% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	14
Meditation	7.14% 1	21.43% 3	28.57% 4	28.57% 4	7.14% 1	0.00% 0	7.14% 1	14
Being surrounded by other working students	35.71% 5	28.57% 4	21.43% 3	14.29% 2	0.00% 0	0.00% 0	0.00% 0	14

Q23 Do you have a specific mental disorder or mental condition?

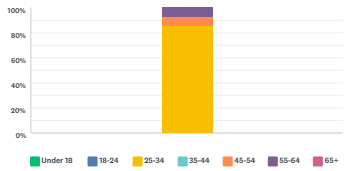
Answered: 14 Skipped: 2



ANSWER CHOICES	RESPONSES	
No	64.29%	9
Autism spectrum disorder (ASD)	0.00%	0
Highly sensitive	0.00%	0
Burn-out (or symptoms)	21.43%	3
Traumatic brain injury	0.00%	0
ADHD / ADD	0.00%	0
Anxiety and/or stress disorder	14.29%	2
Post-traumatic stress disorder (PTSD)	0.00%	0
Rather not say	0.00%	0
Other:	14.29%	2
Total Respondents: 14		

Q24 What is your age?

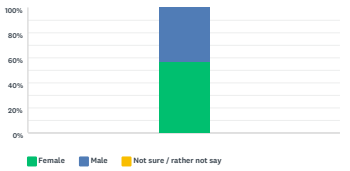
Answered: 14 Skipped: 2



ANSWER CHOICES	RESPONSES	
Under 18	0.00%	0
18-24	0.00%	0
25-34	85.71%	12
35-44	0.00%	0
45-54	7.14%	1
55-64	7.14%	1
65+	0.00%	0
TOTAL		14

Q25 What is your gender?

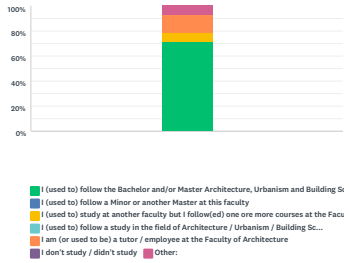
Answered: 14 Skipped: 2



ANSWER CHOICES	RESPONSES	
Female	57.14%	8
Male	42.86%	6
Not sure / rather not say	0.00%	0
TOTAL		14

Q26 What is your relation with the Faculty of Architecture at the TU Delft?

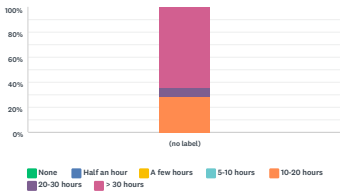
Answered: 14 Skipped: 2



ANSWER CHOICES	RESPONSES	
I (used to) follow the Bachelor and/or Master Architecture, Urbanism and Building Sciences at this faculty	71.43%	10
I (used to) follow a Minor or another Master at this faculty	0.00%	0
I (used to) study at another faculty but I follow(ed) one ore more courses at the Faculty of Architecture	7.14%	1
I (used to) follow a study in the field of Architecture / Urbanism / Building Sciences at another university or school	0.00%	0
I am (or used to be) a tutor / employee at the Faculty of Architecture	14.29%	2
I don't study / didn't study	0.00%	0
Other:	7.14%	1
TOTAL		14

Q27 How much time a week are you approximately present at the Faculty of Architecture at the TU Delft (or were you present in the time you followed a BSc/MSc/course at this faculty)?

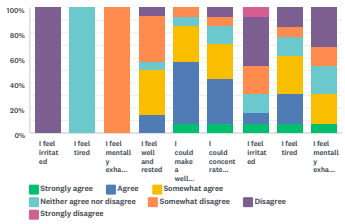
Answered: 14 Skipped: 2



	NONE	HALF AN HOUR	A FEW HOURS	5-10 HOURS	10-20 HOURS	20-30 HOURS	> 30 HOURS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	28.57% 4	7.14% 1	64.29% 9	14	1.00

Q28 At this moment ...

Answered: 14 Skipped: 2



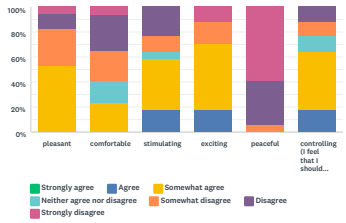
	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
I feel irritated	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	1
I feel tired	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1
I feel mentally exhausted	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	1
I feel well and rested	0.00% 0	14.29% 2	35.71% 5	7.14% 1	35.71% 5	7.14% 1	0.00% 0	14
I could make a well-considered decision	7.14% 1	50.00% 7	28.57% 4	7.14% 1	7.14% 1	0.00% 0	0.00% 0	14
I could concentrate on something	7.14% 1	35.71% 5	28.57% 4	14.29% 2	7.14% 1	7.14% 1	0.00% 0	14
I feel irritated	7.69% 1	7.69% 1	0.00% 0	15.38% 2	23.08% 3	38.46% 5	7.69% 1	13
I feel tired	7.69% 1	23.08% 3	30.77% 4	15.38% 2	7.69% 1	15.38% 2	0.00% 0	13
I feel mentally exhausted	7.69% 1	0.00% 0	23.08% 3	23.08% 3	15.38% 2	30.77% 4	0.00% 0	13

Q29 Among the respondents, I will give away a home-made cake!If you want to have a chance to win this, you can leave your email address in the comment box (note: in that case the survey won't be anonymous anymore). If you have any other comments, you can leave a message in the comment box as well:

Answered: 4 Skipped: 12

Q1 Please rate the following six statements.I consider 'environment A' as ...

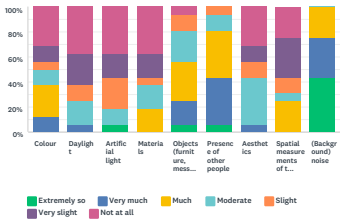
Answered: 17 Skipped: 0



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
pleasant	0.00% 0	0.00% 0	52.94% 9	0.00% 0	29.41% 5	11.76% 2	5.88% 1	17
comfortable	0.00% 0	0.00% 0	23.53% 4	17.65% 3	23.53% 4	29.41% 5	5.88% 1	17
stimulating	0.00% 0	17.65% 3	41.18% 7	5.88% 1	11.76% 2	23.53% 4	0.00% 0	17
exciting	0.00% 0	17.65% 3	52.94% 9	0.00% 0	17.65% 3	0.00% 0	11.76% 2	17
peaceful	0.00% 0	0.00% 0	0.00% 0	0.00% 0	5.88% 1	35.29% 6	58.82% 10	17
controlling(I feel that I should behave in a certain way according to the environment or other present people)	0.00% 0	17.65% 3	47.06% 8	11.76% 2	11.76% 2	11.76% 2	0.00% 0	17

Q2 Which of the following elements in 'environment A' do you find distracting?

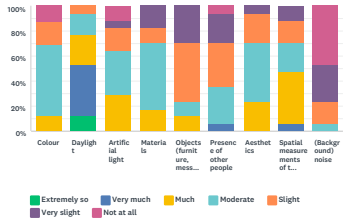
Answered: 16 Skipped: 1



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	12.50% 2	25.00% 4	12.50% 2	6.25% 1	12.50% 2	31.25% 5	16
Daylight	0.00% 0	6.25% 1	0.00% 0	18.75% 3	12.50% 2	25.00% 4	37.50% 6	16
Artificial light	6.25% 1	0.00% 0	0.00% 0	12.50% 2	25.00% 4	18.75% 3	37.50% 6	16
Materials	0.00% 0	0.00% 0	18.75% 3	18.75% 3	6.25% 1	18.75% 3	37.50% 6	16
Objects (furniture, messiness)	6.25% 1	18.75% 3	31.25% 5	25.00% 4	12.50% 2	0.00% 0	6.25% 1	16
Presence of other people	6.25% 1	37.50% 6	37.50% 6	12.50% 2	6.25% 1	0.00% 0	0.00% 0	16
Aesthetics	0.00% 0	6.25% 1	0.00% 0	37.50% 6	12.50% 2	12.50% 2	31.25% 5	16
Spatial measurements of the environment	0.00% 0	0.00% 0	25.00% 4	6.25% 1	12.50% 2	31.25% 5	25.00% 4	16
(Background) noise	43.75% 7	31.25% 5	25.00% 4	0.00% 0	0.00% 0	0.00% 0	0.00% 0	16

Q3 Which of the following elements in 'environment A' do you find pleasing?

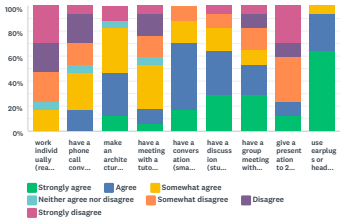
Answered: 17 Skipped: 0



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	0.00% 0	12.50% 2	56.25% 9	18.75% 3	0.00% 0	12.50% 2	16
Daylight	11.76% 2	41.18% 7	23.53% 4	17.65% 3	5.88% 1	0.00% 0	0.00% 0	17
Artificial light	0.00% 0	0.00% 0	29.41% 5	35.29% 6	17.65% 3	5.88% 1	11.76% 2	17
Materials	0.00% 0	0.00% 0	17.65% 3	52.94% 9	11.76% 2	17.65% 3	0.00% 0	17
Objects (furniture, messiness)	0.00% 0	0.00% 0	11.76% 2	11.76% 2	47.06% 8	29.41% 5	0.00% 0	17
Presence of other people	0.00% 0	5.88% 1	0.00% 0	29.41% 5	35.29% 6	23.53% 4	5.88% 1	17
Aesthetics	0.00% 0	0.00% 0	23.53% 4	47.06% 8	23.53% 4	5.88% 1	0.00% 0	17
Spatial measurements of the environment	0.00% 0	5.88% 1	41.18% 7	23.53% 4	17.65% 3	11.76% 2	0.00% 0	17
(Background) noise	0.00% 0	0.00% 0	0.00% 0	5.88% 1	17.65% 3	29.41% 5	47.06% 8	17

Q4 Please rate the statements.In the situation of 'environment A', I would like to ...

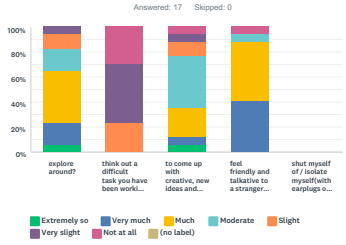
Answered: 17 Skipped: 0



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
work individually (reading / designing / self-reflection)	0.00% 0	0.00% 0	17.65% 3	5.88% 1	23.53% 4	23.53% 4	29.41% 5	17
have a phone call conversation	0.00% 0	17.65% 3	29.41% 5	5.88% 1	17.65% 3	23.53% 4	5.88% 1	17
make an architectural model	11.76% 2	35.29% 6	35.29% 6	5.88% 1	0.00% 0	0.00% 0	11.76% 2	17
have a meeting with a tutor (1 to 1 tutorial)	5.88% 1	11.76% 2	35.29% 6	5.88% 1	17.65% 3	17.65% 3	5.88% 1	17
have a conversation (small talk, not necessarily study-related) with 2-3 persons	17.65% 3	52.94% 9	17.65% 3	0.00% 0	11.76% 2	0.00% 0	0.00% 0	17
have a discussion (study-related) with 3-8 persons	29.41% 5	35.29% 6	17.65% 3	0.00% 0	11.76% 2	0.00% 0	5.88% 1	17
have a group meeting with 8-15 persons	29.41% 5	23.53% 4	11.76% 2	0.00% 0	17.65% 3	11.76% 2	5.88% 1	17
give a presentation to 2-15 people	11.76% 2	11.76% 2	0.00% 0	0.00% 0	35.29% 6	11.76% 2	29.41% 5	17
use earplugs or headphones to block the distracting noises	64.71% 11	29.41% 5	5.88% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17

Q5 The following questions are related to 'environment A'.To what extend is this situation a good environment to ...

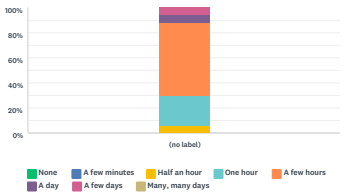
Answered: 17 Skipped: 0



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	(NO LABEL)	TOTAL
explore around?	5.88% 1	17.65% 3	41.18% 7	17.65% 3	11.76% 2	5.88% 1	0.00% 0	0.00% 0	17
think out a difficult task you have been working on?	0.00% 0	0.00% 0	0.00% 0	0.00% 0	23.53% 4	47.06% 8	29.41% 5	0.00% 0	17
to come up with creative, new ideas and concepts?	5.88% 1	5.88% 1	23.53% 4	41.18% 7	11.76% 2	5.88% 1	5.88% 1	0.00% 0	17
feel friendly and talkative to a stranger who happens to be near you?	0.00% 0	41.18% 7	47.06% 8	5.88% 1	0.00% 0	0.00% 0	5.88% 1	0.00% 0	17
shut myself of / isolate myself(with earplugs or headphones)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0

Q6 How much time would you like to spend in 'environment A'?

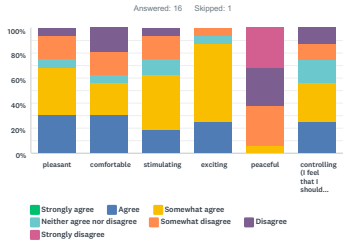
Answered: 17 Skipped: 0



	NONE	A FEW MINUTES	HALF AN HOUR	ONE HOUR	A FEW HOURS	A DAY	A FEW DAYS	MANY, MANY DAYS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	5.88% 1	23.53% 4	58.82% 10	5.88% 1	5.88% 1	0.00% 0	17	1.00

Q7 Please rate the following six statements.I consider 'environment B' as ...

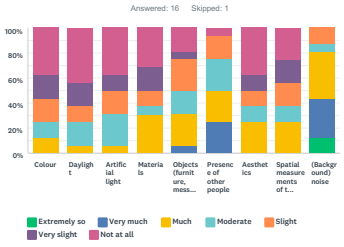
Answered: 16 Skipped: 1



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
pleasant	0.00% 0	31.25% 5	37.50% 6	6.25% 1	18.75% 3	6.25% 1	0.00% 0	16
comfortable	0.00% 0	31.25% 5	25.00% 4	6.25% 1	18.75% 3	18.75% 3	0.00% 0	16
stimulating	0.00% 0	18.75% 3	43.75% 7	12.50% 2	18.75% 3	6.25% 1	0.00% 0	16
exciting	0.00% 0	25.00% 4	62.50% 10	6.25% 1	6.25% 1	0.00% 0	0.00% 0	16
peaceful	0.00% 0	0.00% 0	6.25% 1	0.00% 0	31.25% 5	31.25% 5	31.25% 5	16
controlling(I feel that I should behave in a certain way according to the environment or other present people)	0.00% 0	25.00% 4	31.25% 5	18.75% 3	12.50% 2	12.50% 2	0.00% 0	16

Q8 Which of the following elements in 'environment B' do you find distracting?

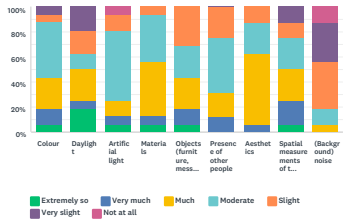
Answered: 16 Skipped: 1



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	0.00% 0	12.50% 2	12.50% 2	18.75% 3	18.75% 3	37.50% 6	16
Daylight	0.00% 0	0.00% 0	6.25% 1	18.75% 3	12.50% 2	18.75% 3	43.75% 7	16
Artificial light	0.00% 0	0.00% 0	6.25% 1	25.00% 4	18.75% 3	12.50% 2	37.50% 6	16
Materials	0.00% 0	0.00% 0	31.25% 5	6.25% 1	12.50% 2	18.75% 3	31.25% 5	16
Objects (furniture, messiness)	0.00% 0	6.25% 1	25.00% 4	18.75% 3	25.00% 4	6.25% 1	18.75% 3	16
Presence of other people	0.00% 0	25.00% 4	25.00% 4	25.00% 4	18.75% 3	0.00% 0	6.25% 1	16
Aesthetics	0.00% 0	0.00% 0	25.00% 4	12.50% 2	12.50% 2	12.50% 2	37.50% 6	16
Spatial measurements of the environment	0.00% 0	0.00% 0	25.00% 4	12.50% 2	18.75% 3	18.75% 3	25.00% 4	16
(Background) noise	12.50% 2	31.25% 5	37.50% 6	6.25% 1	12.50% 2	0.00% 0	0.00% 0	16

Q9 Which of the following elements in 'environment B' do you find pleasing?

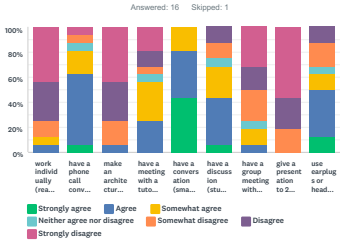
Answered: 16 Skipped: 1



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	6.25% 1	12.50% 2	25.00% 4	43.75% 7	6.25% 1	6.25% 1	0.00% 0	16
Daylight	18.75% 3	6.25% 1	25.00% 4	12.50% 2	18.75% 3	18.75% 3	0.00% 0	16
Artificial light	6.25% 1	6.25% 1	12.50% 2	56.25% 9	12.50% 2	0.00% 0	6.25% 1	16
Materials	6.25% 1	6.25% 1	43.75% 7	37.50% 6	6.25% 1	0.00% 0	0.00% 0	16
Objects (furniture, messiness)	6.25% 1	12.50% 2	25.00% 4	25.00% 4	31.25% 5	0.00% 0	0.00% 0	16
Presence of other people	0.00% 0	12.50% 2	18.75% 3	43.75% 7	25.00% 4	0.00% 0	0.00% 0	16
Aesthetics	0.00% 0	6.25% 1	56.25% 9	25.00% 4	12.50% 2	0.00% 0	0.00% 0	16
Spatial measurements of the environment	6.25% 1	18.75% 3	25.00% 4	25.00% 4	12.50% 2	12.50% 2	0.00% 0	16
(Background) noise	0.00% 0	0.00% 0	6.25% 1	12.50% 2	37.50% 6	31.25% 5	12.50% 2	16

Q10 The following eight statements all contain activities which are related to the design process of students in academic environments. Please rate the statements.In the situation of 'environment B', I would like to ...

Answered: 16 Skipped: 1

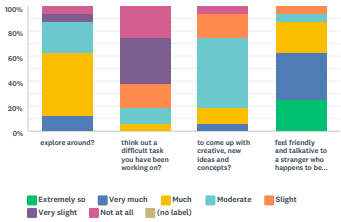


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
work individually (reading / designing / self-reflection)	0.00% 0	6.25% 1	6.25% 1	0.00% 0	12.50% 2	31.25% 5	43.75% 7	16
have a phone call conversation	6.25% 1	56.25% 9	18.75% 3	6.25% 1	6.25% 1	0.00% 0	6.25% 1	16
make an architectural model	0.00% 0	6.25% 1	0.00% 0	0.00% 0	18.75% 3	31.25% 5	43.75% 7	16
have a meeting with a tutor (1 to 1 tutorial)	0.00% 0	25.00% 4	31.25% 5	6.25% 1	6.25% 1	12.50% 2	18.75% 3	16
have a conversation (small talk, not necessarily study-related) with 2-3 persons	43.75% 7	37.50% 6	18.75% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	16
have a discussion (study-related) with 3-8 persons	6.25% 1	37.50% 6	25.00% 4	6.25% 1	12.50% 2	12.50% 2	0.00% 0	16
have a group meeting with 8-15 persons	0.00% 0	6.25% 1	12.50% 2	6.25% 1	25.00% 4	18.75% 3	31.25% 5	16
give a presentation to 2-15 people	0.00% 0	0.00% 0	0.00% 0	0.00% 0	18.75% 3	25.00% 4	56.25% 9	16

use earplugs or headphones to block the distracting noises	12.50% 2	37.50% 6	12.50% 2	6.25% 1	18.75% 3	12.50% 2	0.00% 0	16

Q11 The following questions are related to 'environment B'.To what extend is this situation a good environment to ...

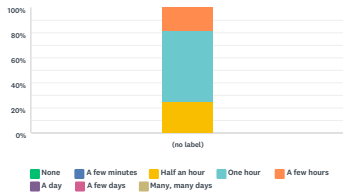
Answered: 16 Skipped: 1



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	(NO LABEL)	TOTAL
explore around?	0.00% 0	12.50% 2	50.00% 8	25.00% 4	0.00% 0	6.25% 1	6.25% 1	0.00% 0	16
think out a difficult task you have been working on?	0.00% 0	0.00% 0	6.25% 1	12.50% 2	18.75% 3	37.50% 6	25.00% 4	0.00% 0	16
to come up with creative, new ideas and concepts?	0.00% 0	6.25% 1	12.50% 2	56.25% 9	18.75% 3	0.00% 0	6.25% 1	0.00% 0	16
feel friendly and talkative to a stranger who happens to be near you?	25.00% 4	37.50% 6	25.00% 4	6.25% 1	6.25% 1	0.00% 0	0.00% 0	0.00% 0	16

Q12 How much time would you like to spend in 'environment B'?

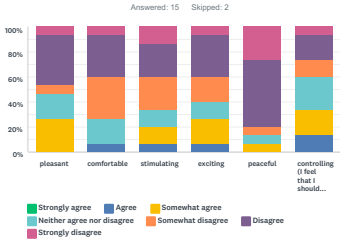
Answered: 16 Skipped: 1



	NONE	A FEW MINUTES	HALF AN HOUR	ONE HOUR	A FEW HOURS	A DAY	A FEW DAYS	MANY, MANY DAYS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	0.00% 0	25.00% 4	56.25% 9	18.75% 3	0.00% 0	0.00% 0	0.00% 0	16	1.00

Q13 Please rate the following six statements.I consider 'environment C' as ...

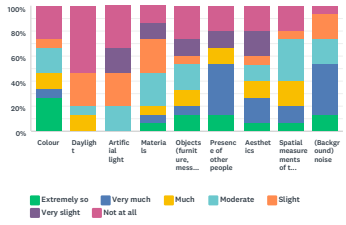
Answered: 15 Skipped: 2



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
pleasant	0.00% 0	0.00% 0	26.67% 4	20.00% 3	6.67% 1	40.00% 6	6.67% 1	15
comfortable	0.00% 0	6.67% 1	0.00% 0	20.00% 3	33.33% 5	33.33% 5	6.67% 1	15
stimulating	0.00% 0	6.67% 1	13.33% 2	13.33% 2	26.67% 4	26.67% 4	13.33% 2	15
exciting	0.00% 0	6.67% 1	20.00% 3	13.33% 2	20.00% 3	33.33% 5	6.67% 1	15
peaceful	0.00% 0	0.00% 0	6.67% 1	6.67% 1	6.67% 1	53.33% 8	26.67% 4	15
controlling(I feel that I should behave in a certain way according to the environment or other present people)	0.00% 0	13.33% 2	20.00% 3	26.67% 4	13.33% 2	20.00% 3	6.67% 1	15

Q14 Which of the following elements in 'environment C' do you find distracting?

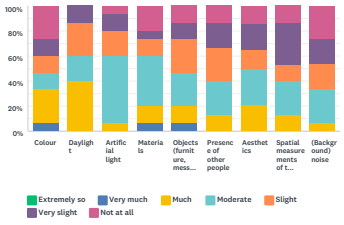
Answered: 15 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	26.67% 4	6.67% 1	13.33% 2	20.00% 3	6.67% 1	0.00% 0	26.67% 4	15
Daylight	0.00% 0	0.00% 0	13.33% 2	6.67% 1	26.67% 4	0.00% 0	53.33% 8	15
Artificial light	0.00% 0	0.00% 0	0.00% 0	20.00% 3	26.67% 4	20.00% 3	33.33% 5	15
Materials	6.67% 1	6.67% 1	6.67% 1	26.67% 4	26.67% 4	13.33% 2	13.33% 2	15
Objects (furniture, messiness)	13.33% 2	6.67% 1	13.33% 2	20.00% 3	6.67% 1	13.33% 2	26.67% 4	15
Presence of other people	13.33% 2	40.00% 6	13.33% 2	0.00% 0	0.00% 0	13.33% 2	20.00% 3	15
Aesthetics	6.67% 1	20.00% 3	13.33% 2	13.33% 2	6.67% 1	20.00% 3	20.00% 3	15
Spatial measurements of the environment	6.67% 1	13.33% 2	20.00% 3	33.33% 5	6.67% 1	0.00% 0	20.00% 3	15
(Background) noise	13.33% 2	40.00% 6	0.00% 0	20.00% 3	20.00% 3	0.00% 0	6.67% 1	15

Q15 Which of the following elements in 'environment C' do you find pleasing?

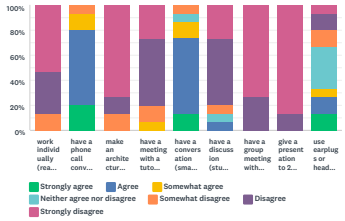
Answered: 15 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	TOTAL
Colour	0.00% 0	6.67% 1	26.67% 4	13.33% 2	13.33% 2	13.33% 2	26.67% 4	15
Daylight	0.00% 0	0.00% 0	40.00% 6	20.00% 3	26.67% 4	13.33% 2	0.00% 0	15
Artificial light	0.00% 0	0.00% 0	6.67% 1	53.33% 8	20.00% 3	13.33% 2	6.67% 1	15
Materials	0.00% 0	6.67% 1	13.33% 2	40.00% 6	13.33% 2	6.67% 1	20.00% 3	15
Objects (furniture, messiness)	0.00% 0	6.67% 1	13.33% 2	26.67% 4	26.67% 4	13.33% 2	13.33% 2	15
Presence of other people	0.00% 0	0.00% 0	13.33% 2	26.67% 4	26.67% 4	20.00% 3	13.33% 2	15
Aesthetics	0.00% 0	0.00% 0	21.43% 3	28.57% 4	14.29% 2	21.43% 3	14.29% 2	14
Spatial measurements of the environment	0.00% 0	0.00% 0	13.33% 2	26.67% 4	13.33% 2	33.33% 5	13.33% 2	15
(Background) noise	0.00% 0	0.00% 0	6.67% 1	26.67% 4	20.00% 3	20.00% 3	26.67% 4	15

Q16 The following eight statements all contain activities which are related to the design process of students in academic environments. Please rate the statements.In the situation of 'environment C', I would like to ...

Answered: 15 Skipped: 2

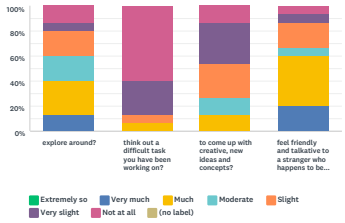


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
work individually (reading / designing / self-reflection)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	13.33% 2	33.33% 5	53.33% 8	15
have a phone call conversation	20.00% 3	60.00% 9	13.33% 2	0.00% 0	6.67% 1	0.00% 0	0.00% 0	15
make an architectural model	0.00% 0	0.00% 0	0.00% 0	0.00% 0	13.33% 2	13.33% 2	73.33% 11	15
have a meeting with a tutor (1 to 1 tutorial)	0.00% 0	0.00% 0	6.67% 1	0.00% 0	13.33% 2	53.33% 8	26.67% 4	15
have a conversation (small talk, not necessarily study-related) with 2-3 persons	13.33% 2	60.00% 9	13.33% 2	6.67% 1	6.67% 1	0.00% 0	0.00% 0	15
have a discussion (study-related) with 3-8 persons	0.00% 0	6.67% 1	0.00% 0	6.67% 1	6.67% 1	53.33% 8	26.67% 4	15
have a group meeting with 8-15 persons	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	26.67% 4	73.33% 11	15
give a presentation to 2-15 people	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	13.33% 2	86.67% 13	15

use earplugs or headphones to block the distracting noises	13.33% 2	13.33% 2	6.67% 1	33.33% 5	13.33% 2	13.33% 2	6.67% 1	15

Q17 The following questions are related to 'environment C'.To what extend is this situation a good environment to ...

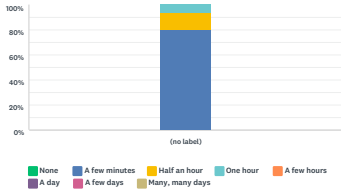
Answered: 15 Skipped: 2



	EXTREMELY SO	VERY MUCH	MUCH	MODERATE	SLIGHT	VERY SLIGHT	NOT AT ALL	(NO LABEL)	TOTAL
explore around?	0.00% 0	13.33% 2	26.67% 4	20.00% 3	20.00% 3	6.67% 1	13.33% 2	0.00% 0	15
think out a difficult task you have been working on?	0.00% 0	0.00% 0	6.67% 1	0.00% 0	6.67% 1	26.67% 4	60.00% 9	0.00% 0	15
to come up with creative, new ideas and concepts?	0.00% 0	0.00% 0	13.33% 2	13.33% 2	26.67% 4	33.33% 5	13.33% 2	0.00% 0	15
feel friendly and talkative to a stranger who happens to be near you?	0.00% 0	20.00% 3	40.00% 6	6.67% 1	20.00% 3	6.67% 1	6.67% 1	0.00% 0	15

Q18 How much time would you like to spend in 'environment C'?

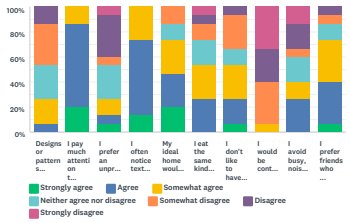
Answered: 15 Skipped: 2



	NONE	A FEW MINUTES	HALF AN HOUR	ONE HOUR	A FEW HOURS	A DAY	A FEW DAYS	MANY, MANY DAYS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	80.00% 12	13.33% 2	6.67% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15	1.00

Q19 Please rate the following statements related to your personality or character.

Answered: 15 Skipped: 2

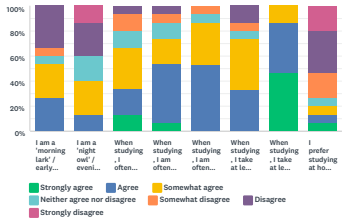


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
Designs or patterns should be bold and exciting	0.00% 0	6.67% 1	20.00% 3	26.67% 4	33.33% 5	13.33% 2	0.00% 0	15
I pay much attention to my surroundings	20.00% 3	66.67% 10	13.33% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
I prefer an unpredictable life that is full of change to a more routine one	6.67% 1	6.67% 1	13.33% 2	26.67% 4	6.67% 1	33.33% 5	6.67% 1	15
I often notice textures	13.33% 2	60.00% 9	26.67% 4	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
My ideal home would be peaceful and quiet	20.00% 3	26.67% 4	26.67% 4	13.33% 2	13.33% 2	0.00% 0	0.00% 0	15
I eat the same kind of food most of the time	0.00% 0	26.67% 4	26.67% 4	20.00% 3	13.33% 2	6.67% 1	6.67% 1	15
I don't like to have lots of activity around me	6.67% 1	20.00% 3	26.67% 4	13.33% 2	26.67% 4	6.67% 1	0.00% 0	15
I would be content to live in the same town for the rest of my life	0.00% 0	0.00% 0	6.67% 1	0.00% 0	33.33% 5	26.67% 4	33.33% 5	15
I avoid busy, noisy places	0.00% 0	26.67% 4	13.33% 2	20.00% 3	6.67% 1	20.00% 3	13.33% 2	15

I prefer friends who are reliable and predictable to those who are excitingly unpredictable	6.67% 1	33.33% 5	33.33% 5	13.33% 2	6.67% 1	6.67% 1	0.00% 0	15

Q20 Please rate the following statements related to your habits and personality.

Answered: 15 Skipped: 2

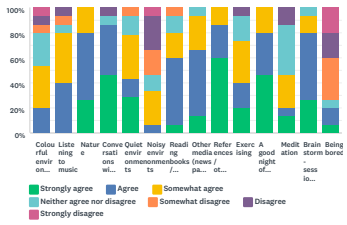


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
I am a 'morning lark' / early bird(I get up early in the morning and go to bed early in the evening. I feel most energetic in the morning just after I get up)	0.00% 0	26.67% 4	26.67% 4	6.67% 1	6.67% 1	33.33% 5	0.00% 0	15
I am a 'night owl' / evening person(I tend to stay up until late at night, or the early hours of the morning. I feel most energetic just before I go to sleep)	0.00% 0	13.33% 2	26.67% 4	20.00% 3	0.00% 0	26.67% 4	13.33% 2	15
When studying, I often switch tasks	13.33% 2	20.00% 3	33.33% 5	13.33% 2	13.33% 2	6.67% 1	0.00% 0	15
When studying, I am often distracted by social media / my smartphone (or other mobile devices)	6.67% 1	46.67% 7	20.00% 3	13.33% 2	6.67% 1	6.67% 1	0.00% 0	15

When studying, I am often distracted by noises / other people / activities around me	0.00% 0	53.33% 8	33.33% 5	6.67% 1	6.67% 1	0.00% 0	0.00% 0	15
When studying, I take at least one break every 1.5 hours of working	0.00% 0	33.33% 5	40.00% 6	6.67% 1	6.67% 1	13.33% 2	0.00% 0	15
When studying, I take at least one break every 4 hours of working	46.67% 7	40.00% 6	13.33% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
I prefer studying at home over studying at the university	6.67% 1	6.67% 1	6.67% 1	6.67% 1	20.00% 3	33.33% 5	20.00% 3	15

Q21 What stimulates your creativity?

Answered: 15 Skipped: 2

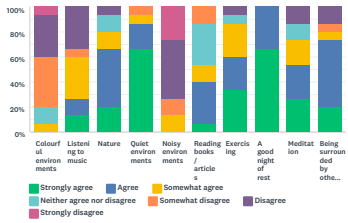


	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
Colourful environments	0.00% 0	20.00% 3	33.33% 5	26.67% 4	6.67% 1	6.67% 1	6.67% 1	15
Listening to music	0.00% 0	40.00% 6	40.00% 6	6.67% 1	6.67% 1	6.67% 1	0.00% 0	15
Nature	26.67% 4	53.33% 8	20.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
Conversations with other people	46.67% 7	40.00% 6	0.00% 0	6.67% 1	0.00% 0	6.67% 1	0.00% 0	15
Quiet environments	28.57% 4	14.29% 2	35.71% 5	14.29% 2	7.14% 1	0.00% 0	0.00% 0	14
Noisy environments	0.00% 0	6.67% 1	26.67% 4	13.33% 2	20.00% 3	26.67% 4	6.67% 1	15
Reading books / articles	6.67% 1	53.33% 8	20.00% 3	13.33% 2	6.67% 1	0.00% 0	0.00% 0	15
Other media (newspaper, documentaries, movies, podcasts)	13.33% 2	53.33% 8	26.67% 4	6.67% 1	0.00% 0	0.00% 0	0.00% 0	15
References / other projects	60.00% 9	26.67% 4	13.33% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
Exercising	20.00% 3	20.00% 3	33.33% 5	20.00% 3	0.00% 0	6.67% 1	0.00% 0	15
A good night of rest	46.67% 7	33.33% 5	20.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
Meditation	13.33% 2	6.67% 1	26.67% 4	40.00% 6	0.00% 0	13.33% 2	0.00% 0	15

Brainstorm-sessions with other people	26.67% 4	53.33% 8	13.33% 2	6.67% 1	0.00% 0	0.00% 0	0.00% 0	15
Being bored	6.67% 1	13.33% 2	0.00% 0	6.67% 1	33.33% 5	20.00% 3	20.00% 3	15

Q22 What stimulates your concentration (focus)?

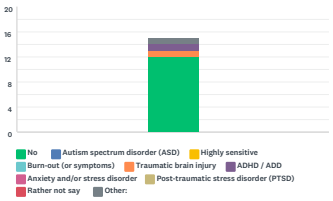
Answered: 15 Skipped: 2



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
Colourful environments	0.00% 0	0.00% 0	6.67% 1	13.33% 2	40.00% 6	33.33% 5	6.67% 1	15
Listening to music	13.33% 2	13.33% 2	33.33% 5	0.00% 0	6.67% 1	33.33% 5	0.00% 0	15
Nature	20.00% 3	46.67% 7	13.33% 2	13.33% 2	0.00% 0	6.67% 1	0.00% 0	15
Quiet environments	66.67% 10	20.00% 3	6.67% 1	0.00% 0	6.67% 1	0.00% 0	0.00% 0	15
Noisy environments	0.00% 0	0.00% 0	13.33% 2	0.00% 0	13.33% 2	46.67% 7	26.67% 4	15
Reading books / articles	6.67% 1	33.33% 5	13.33% 2	33.33% 5	13.33% 2	0.00% 0	0.00% 0	15
Exercising	33.33% 5	26.67% 4	26.67% 4	6.67% 1	0.00% 0	6.67% 1	0.00% 0	15
A good night of rest	66.67% 10	33.33% 5	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	15
Meditation	26.67% 4	26.67% 4	20.00% 3	13.33% 2	0.00% 0	13.33% 2	0.00% 0	15
Being surrounded by other working students	20.00% 3	53.33% 8	6.67% 1	0.00% 0	6.67% 1	13.33% 2	0.00% 0	15

Q23 Do you have a specific mental disorder or mental condition?

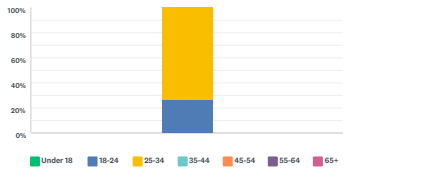
Answered: 15 Skipped: 2



ANSWER CHOICES	RESPONSES	
No	80.00%	12
Autism spectrum disorder (ASD)	0.00%	0
Highly sensitive	0.00%	0
Burn-out (or symptoms)	0.00%	0
Traumatic brain injury	6.67%	1
ADHD / ADD	6.67%	1
Anxiety and/or stress disorder	0.00%	0
Post-traumatic stress disorder (PTSD)	0.00%	0
Rather not say	0.00%	0
Other:	6.67%	1
Total Respondents: 15		

Q24 What is your age?

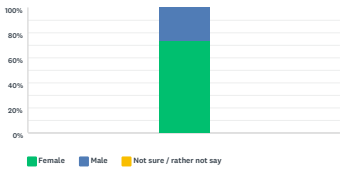
Answered: 15 Skipped: 2



ANSWER CHOICES	RESPONSES	
Under 18	0.00%	0
18-24	26.67%	4
25-34	73.33%	11
35-44	0.00%	0
45-54	0.00%	0
55-64	0.00%	0
65+	0.00%	0
TOTAL		15

Q25 What is your gender?

Answered: 15 Skipped: 2



ANSWER CHOICES	RESPONSES	
Female	73.33%	11
Male	26.67%	4
Not sure / rather not say	0.00%	0
TOTAL		15

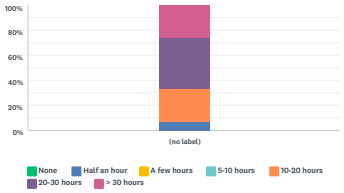
Q26 What is your relation with the Faculty of Architecture at the TU Delft?

Answered: 15 Skipped: 2

ANSWER CHOICES	RESPONSES	
I (used to) follow the Bachelor and/or Master Architecture, Urbanism and Building Sciences at this faculty	73.33%	11
I (used to) follow a Minor or another Master at this faculty	0.00%	0
I (used to) study at another faculty but I follow(ed) one ore more courses at the Faculty of Architecture	13.33%	2
I (used to) follow a study in the field of Architecture / Urbanism / Building Sciences at another university or school	0.00%	0
I am (or used to be) a tutor / employee at the Faculty of Architecture	0.00%	0
I don't study / didn't study	0.00%	0
Other:	13.33%	2
TOTAL		15

Q27 How much time a week are you approximately present at the Faculty of Architecture at the TU Delft (or were you present in the time you followed a BSc/MSc/course at this faculty)?

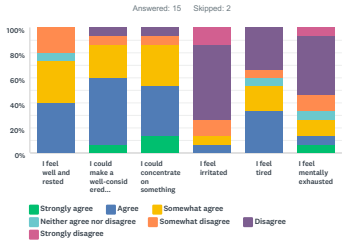
Answered: 15 Skipped: 2



	NONE	HALF AN HOUR	A FEW HOURS	5-10 HOURS	10-20 HOURS	20-30 HOURS	> 30 HOURS	TOTAL	WEIGHTED AVERAGE
(no label)	0.00% 0	6.67% 1	0.00% 0	0.00% 0	26.67% 4	40.00% 6	26.67% 4	15	1.00

Q28 At this moment ...

Answered: 15 Skipped: 2



	STRONGLY AGREE	AGREE	SOMEWHAT AGREE	NEITHER AGREE NOR DISAGREE	SOMEWHAT DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
I feel well and rested	0.00% 0	40.00% 6	33.33% 5	6.67% 1	20.00% 3	0.00% 0	0.00% 0	15
I could make a well-considered decision	6.67% 1	53.33% 8	26.67% 4	0.00% 0	6.67% 1	6.67% 1	0.00% 0	15
I could concentrate on something	13.33% 2	40.00% 6	33.33% 5	0.00% 0	6.67% 1	6.67% 1	0.00% 0	15
I feel irritated	0.00% 0	6.67% 1	6.67% 1	0.00% 0	13.33% 2	60.00% 9	13.33% 2	15
I feel tired	0.00% 0	33.33% 5	20.00% 3	6.67% 1	6.67% 1	33.33% 5	0.00% 0	15
I feel mentally exhausted	6.67% 1	6.67% 1	13.33% 2	6.67% 1	13.33% 2	46.67% 7	6.67% 1	15

Q29 Among the respondents, I will give away a home-made cake!If you want to have a chance to win this, you can leave your email address in the comment box (note: in that case the survey won't be anonymous anymore). If you have any other comments, you can leave a message in the comment box as well:

Answered: 8 Skipped: 9

annex 2

- rating tables

Q1/7/13; *" I consider 'environment X' as ..."*

	strongly agree	agree	somewhat agree	neither agree nor disagree	somewhat disagree	disagree	strongly disagree
pleasant	+3	+2	+1	0	-1	-2	-3
comfortable	+3	+2	+1	0	-1	-2	-3
stimulating	+3	+2	+1	0	-1	-2	-3
exciting	+3	+2	+1	0	-1	-2	-3
peaceful	-3	-2	-1	0	+1	+2	+3
controlling	+3	+2	+1	0	-1	-2	-3

Q2/8/14; *" Which of the following elements in 'environment X' do you find distracting? "*

	extremely so	very much	much	moderate	slight	very slight	not at all
colour	-3	-2	-1	0	+1	+2	+3
daylight	-3	-2	-1	0	+1	+2	+3
artificial light	-3	-2	-1	0	+1	+2	+3
materials	-3	-2	-1	0	+1	+2	+3
objects (furntiture, messiness)	-3	-2	-1	0	+1	+2	+3
presence of other people	-3	-2	-1	0	+1	+2	+3
aesthetics	-3	-2	-1	0	+1	+2	+3
spatial measurements	-3	-2	-1	0	+1	+2	+3
(background) noise	-3	-2	-1	0	+1	+2	+3

Q3/9/15; *" Which of the following elements in 'environment X' do you find pleasing? "*

	extremely so	very much	much	moderate	slight	very slight	not at all
colour	+3	+2	+1	0	-1	-2	-3
daylight	+3	+2	+1	0	-1	-2	-3
artificial light	+3	+2	+1	0	-1	-2	-3
materials	+3	+2	+1	0	-1	-2	-3
objects (furntiture, messiness)	+3	+2	+1	0	-1	-2	-3
presence of other people	+3	+2	+1	0	-1	-2	-3
aesthetics	+3	+2	+1	0	-1	-2	-3
spatial measurements	+3	+2	+1	0	-1	-2	-3
(background) noise	+3	+2	+1	0	-1	-2	-3

Q4/10/16; *" In the situation of 'environment X', I would like to... "*

	strongly agree	agree	somewhat agree	neither agree nor disagree	somewhat disagree	disagree	strongly disagree
work individually	+3	+2	+1	0	-1	-2	-3
have a phone call conversation	+3	+2	+1	0	-1	-2	-3
make an architectural model	+3	+2	+1	0	-1	-2	-3
tutor meeting	+3	+2	+1	0	-1	-2	-3
small conversation	+3	+2	+1	0	-1	-2	-3
discussion	+3	+2	+1	0	-1	-2	-3
group meeting	+3	+2	+1	0	-1	-2	-3
presentation	+3	+2	+1	0	-1	-2	-3
use noise-filter	-3	-2	-1	0	+1	+2	+3

Q5/11/17; *" To what extend is this situation a good environment to... "*

	extremely so	very much	much	moderate	slight	very slight	not at all
explore around	+3	+2	+1	0	-1	-2	-3
think out difficult task	+3	+2	+1	0	-1	-2	-3
come up with new, creative ideas	+3	+2	+1	0	-1	-2	-3
feel talkative to stranger	+3	+2	+1	0	-1	-2	-3

Q6/12/18; *" How much time would you like to spend in 'environment X'? "*

none	a few minutes	half an hour	one hour	a few hours	a day	a few days	many days
0	+1	+2	+3	+4	+5	+6	+7

Q19; *" Please rate the following statements related to your personality or character "*

	strongly agree	agree	somewhat agree	neither agree nor disagree	somewhat disagree	disagree	strongly disagree
bold patterns	+3	+2	+1	0	-1	-2	-3
attention surroundings	+3	+2	+1	0	-1	-2	-3
unpredictable life	+3	+2	+1	0	-1	-2	-3

notice textures	+3	+2	+1	0	-1	-2	-3
quiet home	-3	-2	-1	0	+1	+2	+3
same food	-3	-2	-1	0	+1	+2	+3
no activity around	-3	-2	-1	0	+1	+2	+3
same town	-3	-2	-1	0	+1	+2	+3
avoid busy places	-3	-2	-1	0	+1	+2	+3
reliable friends	-3	-2	-1	0	+1	+2	+3

Q20; *" Please rate the following statements related to your habits and personality "*

	strongly agree	agree	somewhat agree	neither agree nor disagree	somewhat disagree	disagree	strongly disagree
morning person	+3	+2	+1	0	-1	-2	-3
evening person	+3	+2	+1	0	-1	-2	-3
switch tasks	+3	+2	+1	0	-1	-2	-3
social media distraction	+3	+2	+1	0	-1	-2	-3
environmental distractions	+3	+2	+1	0	-1	-2	-3
break every 1.5 hours	+3	+2	+1	0	-1	-2	-3
break every 4 hours	+3	+2	+1	0	-1	-2	-3
prefer studying at home	+3	+2	+1	0	-1	-2	-3

Q21; *" What stimulates your creativity? "*

	strongly agree	agree	somewhat agree	neither agree nor disagree	somewhat disagree	disagree	strongly disagree
colour	+3	+2	+1	0	-1	-2	-3
music	+3	+2	+1	0	-1	-2	-3
nature	+3	+2	+1	0	-1	-2	-3
conversations	+3	+2	+1	0	-1	-2	-3
quietness	+3	+2	+1	0	-1	-2	-3
noise	+3	+2	+1	0	-1	-2	-3
reading	+3	+2	+1	0	-1	-2	-3
other media	+3	+2	+1	0	-1	-2	-3
other projects	+3	+2	+1	0	-1	-2	-3
exercising	+3	+2	+1	0	-1	-2	-3
night of rest	+3	+2	+1	0	-1	-2	-3

meditation	+3	+2	+1	0	-1	-2	-3
brainstorming	+3	+2	+1	0	-1	-2	-3
boredom	+3	+2	+1	0	-1	-2	-3

Q22; *" What stimulates your concentration/focus? "*

	strongly agree	agree	somewhat agree	neither agree nor disagree	somewhat disagree	disagree	strongly disagree
colour	+3	+2	+1	0	-1	-2	-3
music	+3	+2	+1	0	-1	-2	-3
nature	+3	+2	+1	0	-1	-2	-3
quietness	+3	+2	+1	0	-1	-2	-3
noise	+3	+2	+1	0	-1	-2	-3
reading	+3	+2	+1	0	-1	-2	-3
exercising	+3	+2	+1	0	-1	-2	-3
night of rest	+3	+2	+1	0	-1	-2	-3
meditation	+3	+2	+1	0	-1	-2	-3
other students	+3	+2	+1	0	-1	-2	-3

Q23; *" Do you have a specific mental disorder or mental condition? "*

no	autism	highly sensitive	burn-out (symptoms)	brain injury	ADHD/ ADD	anxiety/ stress	PTSD	other
0	+1	+1	+1	+1	+1	+1	+1	+1

Q24; *" What is your age? "*

<18	18-24	25-34	35-44	45-54	55-64	65<

Q25; *" What is your gender? "*

female	male

Q26; *" What is your relation with the Faculty of Architecture at Delft University of Technology? "*

BSc/MSc	course	tutor	other
+1	0	0	-1

Q27; *"How much time a week are you approximately present at the Faculty of Architecture at Delft University of Technology (or were you present in the time you followed a BSc/MSc/course at this faculty?"*

none	half an hour	a few hours	5-10 hours	10-20 hours	20-30 hours	>30 hours
0	+1	+2	+3	+4	+5	+6

Q28; *"At this moment ..."*

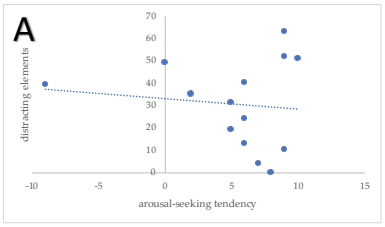
	strongly agree	agree	somewhat agree	neither agree nor disagree	somewhat disagree	disagree	strongly disagree
well and rested	+3	+2	+1	0	-1	-2	-3
considered decision	+3	+2	+1	0	-1	-2	-3
concentrate	+3	+2	+1	0	-1	-2	-3
irritated	-3	-2	-1	0	+1	+2	+3
tired	-3	-2	-1	0	+1	+2	+3
mentally exhausted	-3	-2	-1	0	+1	+2	+3

annex 3

- diagrams and correlation coefficients of possible relations between variables

	Arousal-seeking tendency	Distracting elements
123	7	4
	0	49
	5	19
	9	63
	2	35
	9	10
	8	0
	10	51
	6	24
	6	40
	9	52
	-9	39
r=	6	13
-0,1174559	5	31
ABC	-6	34
	12	-10
	10	-22
	-6	7
	1	15
	-7	-11
	4	56
	7	12
	9	-4
	-9	5
	2	28
	0	64
	13	24
r=	1	-5
-0,129147	1	-1

A



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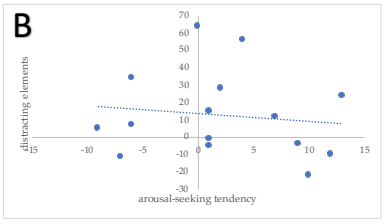
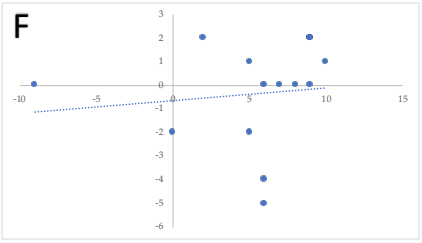


	Arousal-seeking tendency	Orange Hall (pleasant + comfortable)
123	7	0
	0	-2
	5	1
	9	2
	2	2
	9	0
	8	0
	10	1
	6	-4
	6	0
	9	2
	-9	0
r=	6	-5
0,12228866	5	-2
	Arousal-seeking tendency	Studio (pleasant + comfortable)
ABC	-6	2
	12	0
	10	-2
	-6	-1
	1	-4
	-7	-2
	4	-6
	7	-3
	9	0
	-9	-3
	2	-1
	0	1
	13	2
r=	1	2
0,09608882	1	1

F



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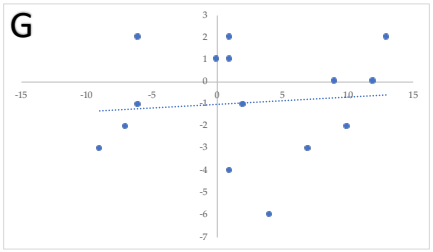
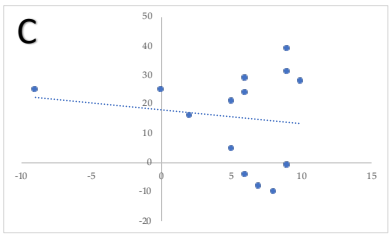


	Arousal-seeking tendency	Distracting elements (stimuli-rich spaces)
123	7	-8
	0	25
	5	5
	9	39
	2	16
	9	-1
	8	-10
	10	28
	6	29
	6	24
	9	31
	-9	25
r=	6	-4
-0,1457288	5	21
ABC	-6	28
	12	-6
	10	-15
	-6	-1
	1	15
	-7	0
	4	48
	7	6
	9	-7
	-9	15
	2	18
	0	45
	13	9
r=	1	-2
-0,2689929	1	-7

C



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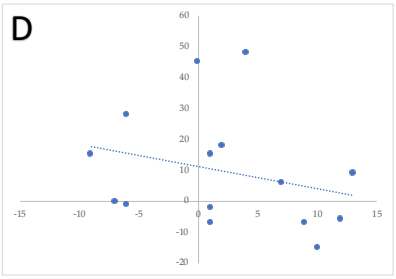
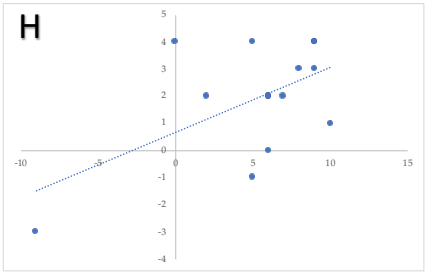
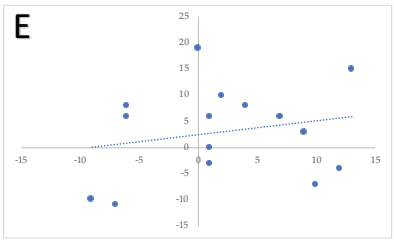


	Arousal-seeking tendency	BK Library (pleasant + comfortable)
123	7	2
	0	4
	5	4
	9	4
	2	2
	9	3
	8	3
	10	1
	6	0
	6	2
	9	4
	-9	-3
r=	6	2
0,5661271	5	-1
	Arousal-seeking tendency	Distracting elements Studio
ABC	-6	6
	12	-4
	10	-7
	-6	8
	1	0
	-7	-11
	4	8
	7	6
	9	3
	-9	-10
	2	10
	0	19
	13	15
r=	1	-3
0,21332105	1	6

H

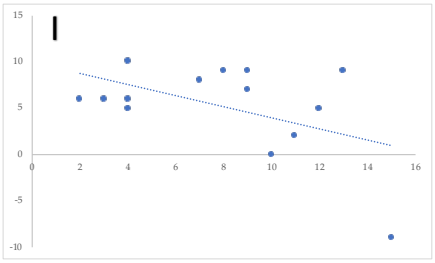


E



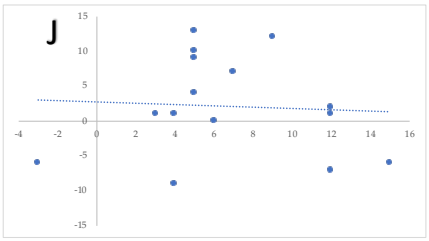
			Arousal rate (total)	Arousal-seeking tendency
123	6	-1	4	9	7
	4	-1	7	10	0
	3	-4	5	4	5
	0	2	7	9	9
	6	-2	7	11	2
	6	-1	8	13	9
	6	-4	5	7	8
	5	-5	4	4	10
	1	-7	8	2	6
	3	-5	6	4	6
	6	-1	3	8	9
	6	6	3	15	-9
r=	1	1	1	3	6
-0,492338	3	1	8	12	5

I



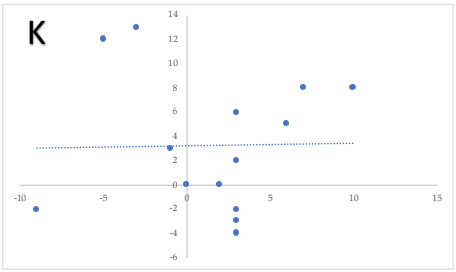
			Arousal rate (total)	Arousal-seeking tendency
ABC	2	1	-6	-3	-6
	5	5	-1	9	12
	4	0	1	5	10
	5	5	5	15	-6
	2	4	-2	4	1
	3	3	6	12	-7
	1	5	-1	5	4
	5	5	-3	7	7
	-1	5	1	5	9
	5	1	-2	4	-9
	6	4	2	12	2
	4	3	-1	6	0
	2	3	0	5	13
r=	0	2	1	3	1
-0,0606674	5	4	3	12	1

J



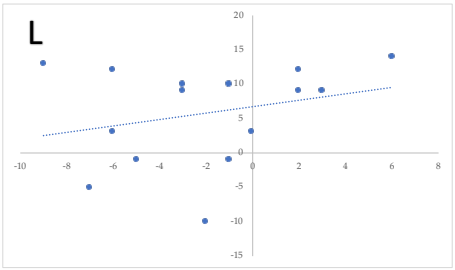
	Pleasure/ comfort-rate	Current mood
123	3	6
	3	-4
	7	8
	10	8
	3	-3
	3	-2
	6	5
	0	0
	-5	12
	3	2
	2	0
	-3	13
r=	-9	-2
0,0189772	-1	3

K



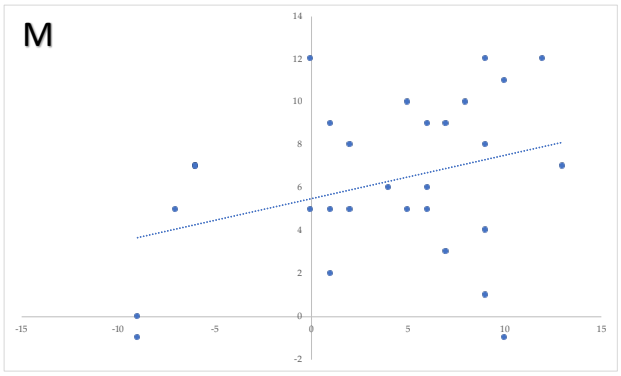
	Pleasure/ comfort-rate	Current mood
ABC	0	3
	3	9
	-6	3
	-3	10
	-6	12
	-1	-1
	-9	13
	-5	-1
	-1	10
	-7	-5
	-2	-10
	6	14
	2	12
r=	-3	9
0,26893854	2	9

L



	Arousal-seeking tendency	Creativity from external factors
123	7	3
	0	5
	5	10
	9	12
	2	8
	9	4
	8	10
	10	-1
	6	6
	6	9
	9	1
	-9	0
	6	5
	5	5
ABC	-6	7
	12	12
	10	11
	-6	7
	1	5
	-7	5
	4	6
	7	9
	9	8
	-9	-1
	2	5
	0	12
	13	7
r=	1	2
0,33511357	1	9

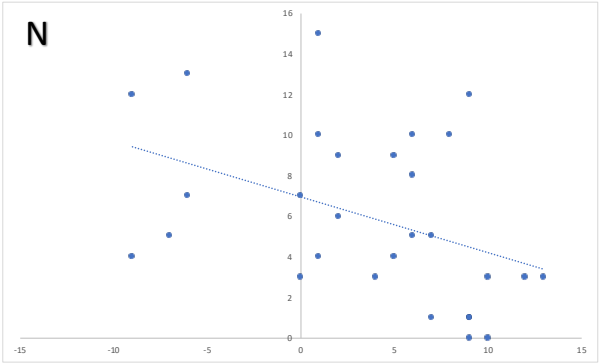
M



external factors:
colour
music
conversations
noise
other media
brainstorming

	Arousal-seeking tendency	Creativity from internal factors
123	7	5
	0	3
	5	9
	9	12
	2	9
	9	1
	8	10
	10	0
	6	8
	6	5
	9	0
	-9	4
	6	10
	5	4
ABC	-6	7
	12	3
	10	3
	-6	13
	1	15
	-7	5
	4	3
	7	1
	9	1
	-9	12
	2	6
	0	7
	13	3
r=	1	10
-0,4126971	1	4

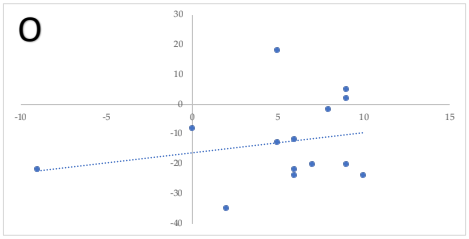
N



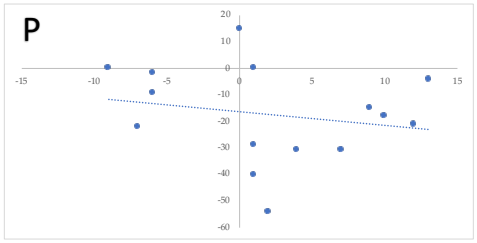
internal factors:
nature
quietness
reading
night of rest
meditation
boredom

	Arousal-seeking tendency	Activity rate
123	7	-20
	0	-8
	5	18
	9	5
	2	-35
	9	2
	8	-2
	10	-24
	6	-12
	6	-24
	9	-20
	-9	-22
r=	6	-22
0,234387782	5	-13
ABC	-6	-9
	12	-21
	10	-18
	-6	-2
	1	-40
	-7	-22
	4	-31
	7	-31
	9	-15
	-9	0
	2	-54
	0	15
	13	-4
r=	1	-29
-0,20214561	1	0

O

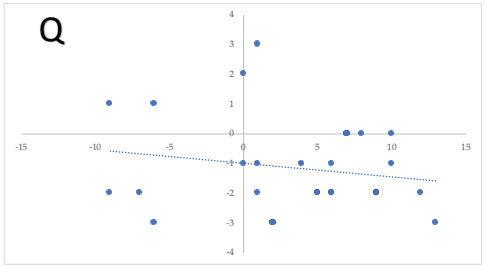


P



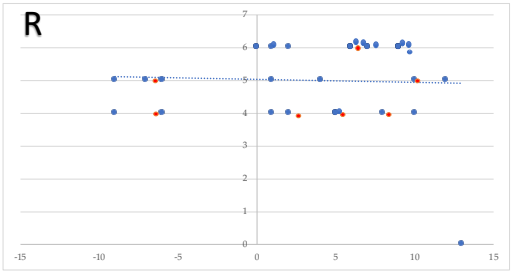
	Arousal-seeking tendency	Prefer studying at home
123	7	0
	0	-1
	5	-2
	9	
	2	-3
	9	-2
	8	0
	10	0
	6	-2
	6	-2
	9	-2
	-9	1
	6	-1
	5	-2
ABC	-6	-3
	12	-2
	10	-1
	-6	1
	1	3
	-7	-2
	4	-1
	7	0
	9	-2
	-9	-2
	2	-3
	0	2
	13	-3
r=	1	-2
-0,18649537	1	-1

Q



	Arousal-seeking tendency	Spent hours at the faculty
123	7	6
	0	6
	5	4
	9	6
	2	6
	9	6
	8	4
	10	5
	6	6
	6	6
	9	6
	-9	4
	6	6
	5	4
ABC	-6	5
	12	5
	10	4
	-6	4
	1	4
	-7	5
	4	5
	7	6
	9	6
	-9	5
	2	4
	0	6
	13	0
r=	1	6
-0,04472401	1	5

R

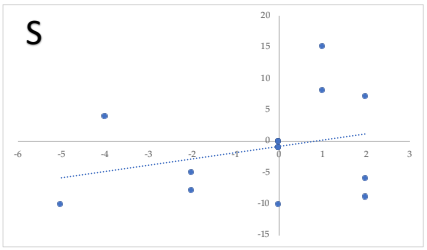


none	half an hour	a few hours	5-10 hours	10-20 hours	20-30 hours	>30 hours
0	1	2	3	4	5	6

blue dot = regular — average: 5.14 (+/- 30 hours)
red dot = mental disorder — average: 4.57 (+/- 20 hours)

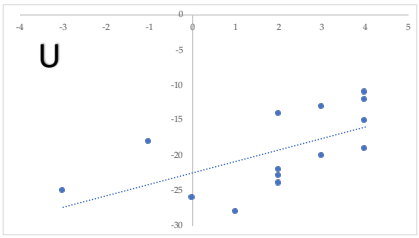
	Pleasure/ comfort-rate	Activity rate
123	0	-10
	-2	-5
Orange Hall	1	15
	2	7
	2	-9
	0	-1
	0	-1
	1	8
	-4	4
	0	0
	2	-6
	0	0
r=	-5	-10
0,287229999	-2	-8

S



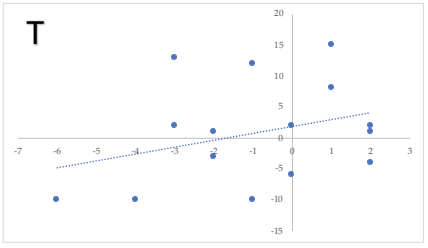
	Pleasure/ comfort-rate	Activity rate
123	2	-14
	4	-15
BK Library	4	-19
	4	-11
	2	-24
	3	-13
	3	-20
	1	-28
	0	-26
	2	-23
	4	-12
	-3	-25
r=	2	-22
0,609200907	-1	-18

U



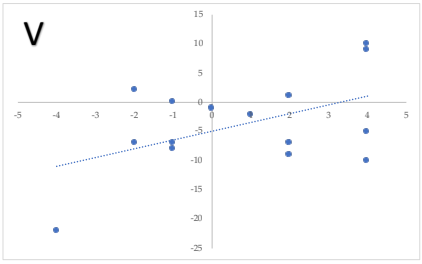
	Pleasure/ comfort-rate	Activity rate
ABC	2	2
	0	2
Studio Space	-2	1
	-1	12
	-4	-10
	-2	-3
	-6	-10
	-3	2
	0	-6
	-3	13
	-1	-10
	1	8
	2	1
r=	2	-4
0,322398571	1	15

T



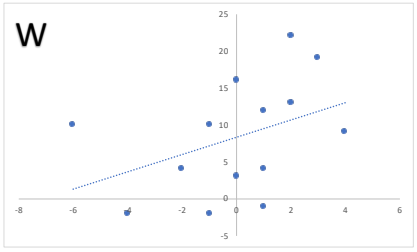
	Pleasure/ comfort-rate	Activity rate
ABC	-2	2
	2	-7
Canteen	-2	-7
	-1	0
	2	-9
	4	-5
	-1	-8
	4	-10
	2	1
	0	-1
	-4	-22
	4	10
	4	9
r=	-1	-7
0,49116372	1	-2

V



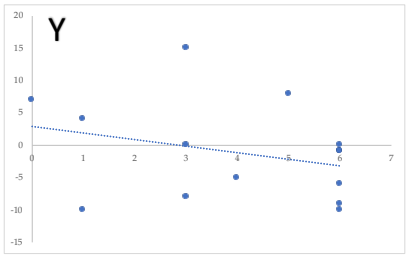
	Pleasure/ comfort-rate	Activity rate
123	1	4
	1	12
Model Hall	2	22
	4	9
	-1	-2
	0	16
	3	19
	-2	4
	-1	10
	1	-1
	-4	-2
	0	3
r=	-6	10
0,409609875	2	13

W



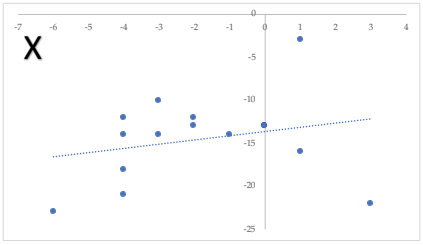
	Arousal rate	Activity rate
123	6	-10
	4	-5
Orange Hall	3	15
	0	7
	6	-9
	6	-1
	6	-1
	5	8
	1	4
	3	0
	6	-6
	6	0
r=	1	-10
-0,29338752	3	-8

Y



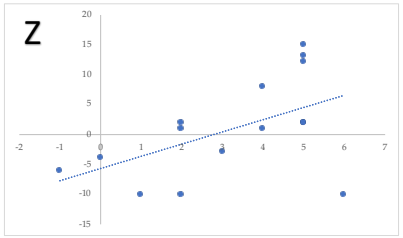
	Pleasure/ comfort-rate	Activity rate
ABC	0	-13
	1	-16
Hallway spot	-2	-12
	-1	-14
	-4	-21
	-3	-14
	-2	-13
	-6	-23
	-3	-10
	-4	-12
	3	-22
	1	-3
	-4	-14
r=	-4	-18
0,240205828	0	-13

X



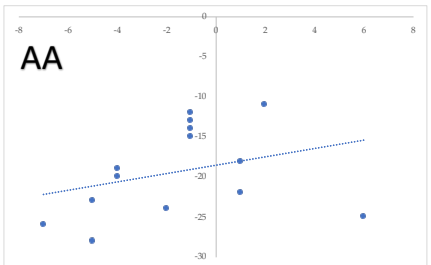
	Arousal rate	Activity rate
ABC	2	2
	5	2
Studio Space	4	1
	5	12
	2	-10
	3	-3
	1	-10
	5	2
	-1	-6
	5	13
	6	-10
	4	8
	2	1
r=	0	-4
0,518977491	5	15

Z



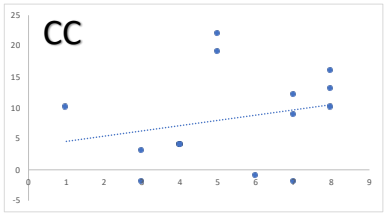
	Arousal rate	Activity rate
123	-1	-14
	-1	-15
BK Library	-4	-19
	2	-11
	-2	-24
	-1	-13
	-4	-20
	-5	-28
	-7	-26
	-5	-23
	-1	-12
	6	-25
r=	1	-22
0,316266385	1	-18

AA



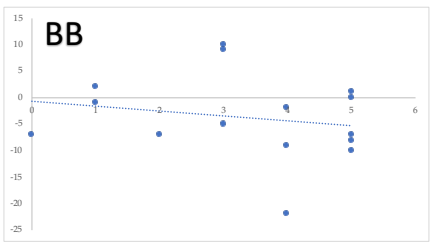
	Arousal rate	Activity rate
123	4	4
	7	12
Model Hall	5	22
	7	9
	7	-2
	8	16
	5	19
	4	4
	8	10
	6	-1
	3	-2
	3	3
r=	1	10
0,244142004	8	13

CC



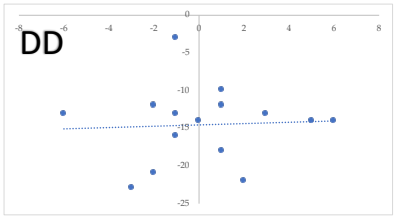
	Arousal rate	Activity rate
ABC	1	2
	5	-7
Canteen	0	-7
	5	0
	4	-9
	3	-5
	5	-8
	5	-10
	5	1
	1	-1
	4	-22
	3	10
	3	9
r=	2	-7
-0,19496691	4	-2

BB



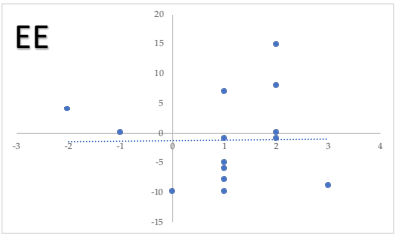
	Arousal rate	Activity rate
ABC	-6	-13
	-1	-16
Hallway spot	1	-12
	5	-14
	-2	-21
	6	-14
	-1	-13
	-3	-23
	1	-10
	-2	-12
	2	-22
	-1	-3
	0	-14
r=	1	-18
0,053300869	3	-13

DD



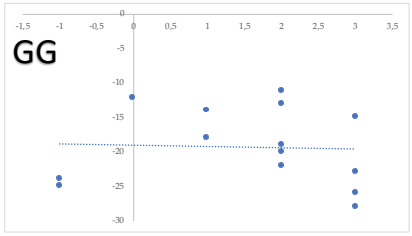
	Controlling	Activity rate
123	1	-10
	1	-5
Orange Hall	2	15
	1	7
	3	-9
	2	-1
	1	-1
	2	8
	-2	4
	-1	0
	1	-6
	2	0
r=	0	-10
0,015635638	1	-8

EE



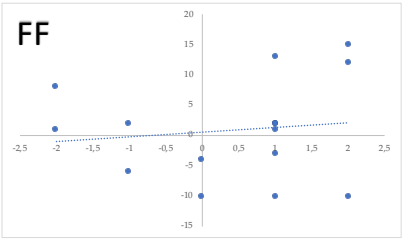
	Controlling	Activity rate
123	1	-14
	3	-15
BK Library	2	-19
	2	-11
	-1	-24
	2	-13
	2	-20
	3	-28
	3	-26
	3	-23
	0	-12
	-1	-25
r=	2	-22
-0,04634831	1	-18

GG



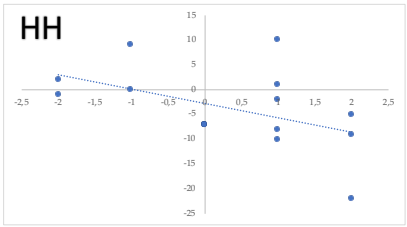
	Controlling	Activity rate
ABC	1	2
	1	2
Studio Space	1	1
	2	12
	2	-10
	1	-3
	1	-10
	-1	2
	-1	-6
	1	13
	0	-10
	-2	8
	-2	1
r=	0	-4
0,125926345	2	15

FF



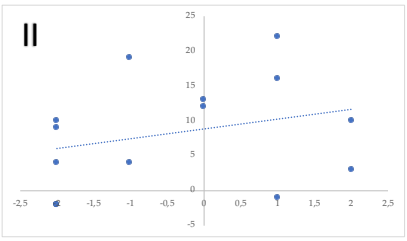
	Controlling	Activity rate
ABC	-2	2
	0	-7
Canteen	0	-7
	-1	0
	2	-9
	2	-5
	1	-8
	1	-10
	1	1
	-2	-1
	2	-22
	1	10
	-1	9
r=	0	-7
-0,4903332	1	-2

HH



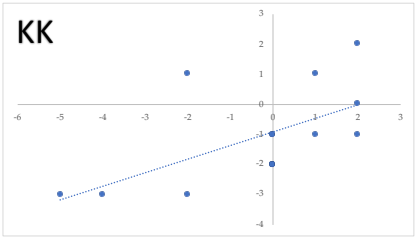
	Controlling	Activity rate
123	-2	4
	0	12
Model Hall	1	22
	-2	9
	-2	-2
	1	16
	-1	19
	-1	4
	2	10
	1	-1
	-2	-2
	2	3
r=	-2	10
0,282941986	0	13

II



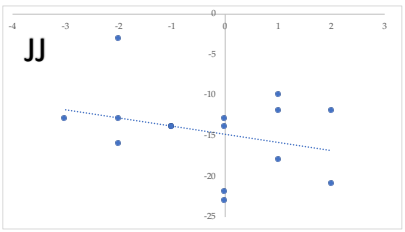
	Pleasure/ comfort-rate	Work individuall y
123	0	-1
	-2	1
Orange Hall	1	1
	2	2
	2	0
	0	-2
	0	-2
	1	-1
	-4	-3
	0	-2
	2	-1
	0	-1
r=	-5	-3
0,61570133	-2	-3

KK



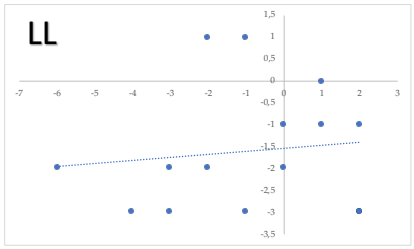
	Controlling	Activity rate
ABC	-3	-13
	-2	-16
Hallway spot	1	-12
	-1	-14
	2	-21
	0	-14
	-2	-13
	0	-23
	1	-10
	2	-12
	0	-22
	-2	-3
	-1	-14
r=	1	-18
-0,305258369	0	-13

JJ



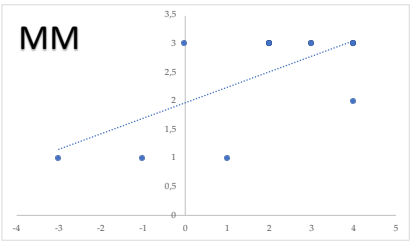
	Pleasure/ comfort-rate	Work individuall y
ABC	2	-3
	0	-2
Studio Space	-2	-2
	-1	1
	-4	-3
	-2	1
	-6	-2
	-3	-3
	0	-1
	-3	-2
	-1	-3
	1	0
	2	-3
r=	2	-1
0,11848675	1	-1

LL



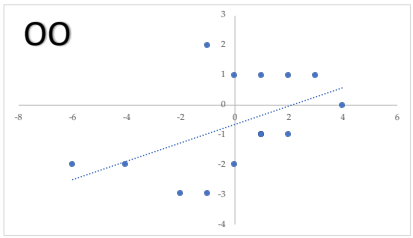
	Pleasure/ comfort-rate	Work individually
123	2	3
	4	3
BK Library	4	3
	4	3
	2	3
	3	3
	3	3
	1	1
	0	3
	2	3
	4	2
	-3	1
r=	2	3
0,666507058	-1	1

MM



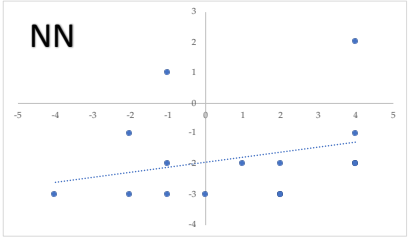
	Pleasure/ comfort-rate	Work individuall y
123	1	1
	1	-1
Model Hall	2	-1
	4	0
	-1	-3
	0	-2
	3	1
	-2	-3
	-1	2
	1	-1
	-4	-2
	0	1
r=	-6	-2
0,50405117	2	1

OO



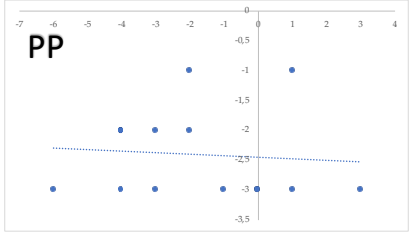
	Pleasure/ comfort-rate	Work individually
ABC	-2	-3
	2	-3
Canteen	-2	-1
	-1	-3
	2	-3
	4	-1
	-1	1
	4	-2
	2	-2
	0	-3
	-4	-3
	4	2
	4	-2
r=	-1	-2
0,282075974	1	-2

NN

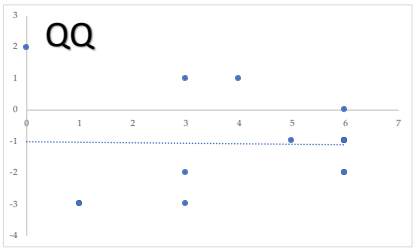


	Pleasure/ comfort-rate	Work individuall y
ABC	0	-3
	1	-3
Hallway spot	-2	-1
	-1	-3
	-4	-3
	-3	-2
	-2	-2
	-6	-3
	-3	-3
	-4	-2
	3	-3
	1	-1
	-4	-2
r=	-4	-2
-0,08618685	0	-3

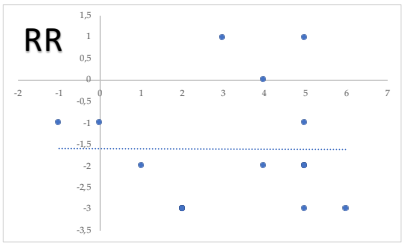
PP



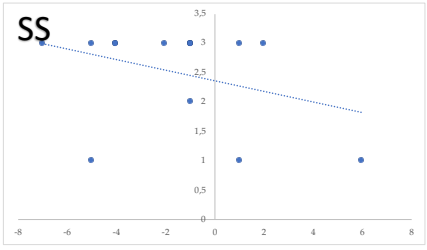
	Arousal rate	Work individually
123	6	-1
	4	1
Orange Hall	3	1
	0	2
	6	0
	6	-2
	6	-2
	5	-1
	1	-3
	3	-2
	6	-1
	6	-1
r=	1	-3
-0,02213185	3	-3



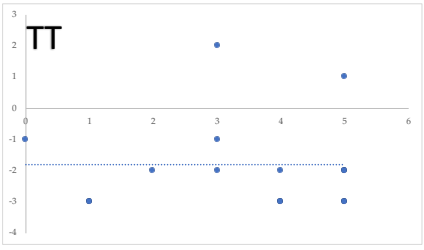
	Arousal rate	Work individually
ABC	2	-3
	5	-2
Studio Space	4	-2
	5	1
	2	-3
	3	1
	1	-2
	5	-3
	-1	-1
	5	-2
	6	-3
	4	0
	2	-3
r=	0	-1
-0,00481929	5	-1



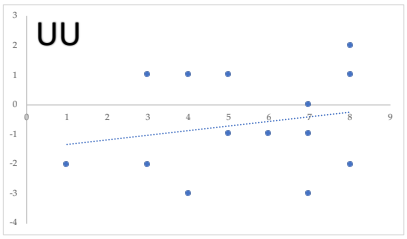
	Arousal rate	Work individually
123	-1	3
	-1	3
BK Library	-4	3
	2	3
	-2	3
	-1	3
	-4	3
	-5	1
	-7	3
	-5	3
	-1	2
	6	1
r=	1	3
-0,35822127	1	1



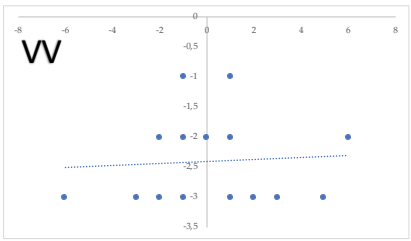
	Arousal rate	Work individually
ABC	1	-3
	5	-3
Canteen	0	-1
	5	-3
	4	-3
	3	-1
	5	1
	5	-2
	5	-2
	1	-3
	4	-3
	3	2
	3	-2
r=	2	-2
3,10998E-18	4	-2



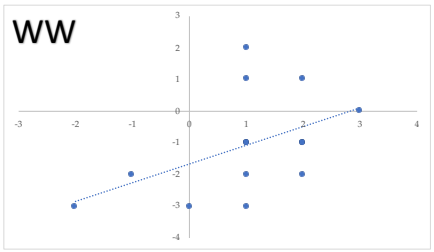
	Arousal rate	Work individually
123	4	1
	7	-1
Model Hall	5	-1
	7	0
	7	-3
	8	-2
	5	1
	4	-3
	8	2
	6	-1
	3	-2
	3	1
r=	1	-2
0,208568705	8	1



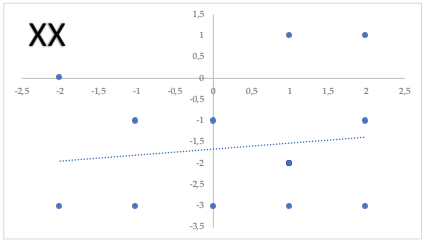
	Arousal rate	Work individually
ABC	-6	-3
	-1	-3
Hallway spot	1	-1
	5	-3
	-2	-3
	6	-2
	-1	-2
	-3	-3
	1	-3
	-2	-2
	2	-3
	-1	-1
	0	-2
r=	1	-2
0,06935406	3	-3



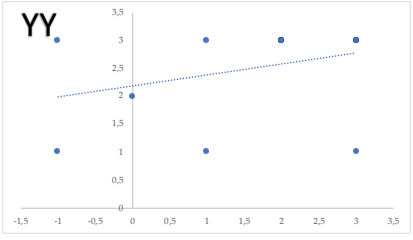
	Controlling rate	Work individually
123	1	-1
	1	1
Orange Hall	2	1
	1	2
	3	0
	2	-2
	1	-2
	2	-1
	-2	-3
	-1	-2
	1	-1
	2	-1
r=	0	-3
0,482998261	1	-3



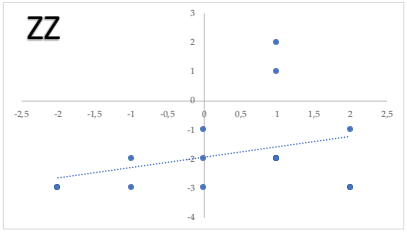
	Controlling rate	Work individually
ABC	1	-3
	1	-2
Studio Space	1	-2
	2	1
	2	-3
	1	1
	1	-2
	-1	-3
	-1	-1
	1	-2
	0	-3
	-2	0
	-2	-3
r=	0	-1
0,135434085	2	-1



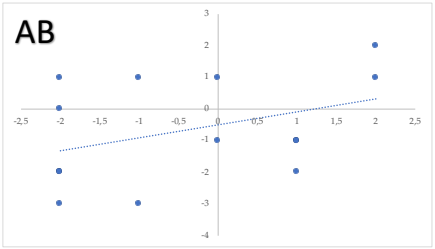
	Controlling rate	Work individually
123	1	3
	3	3
BK Library	2	3
	2	3
	-1	3
	2	3
	2	3
	3	1
	3	3
	3	3
	0	2
	-1	1
r=	2	3
0,321697155	1	1



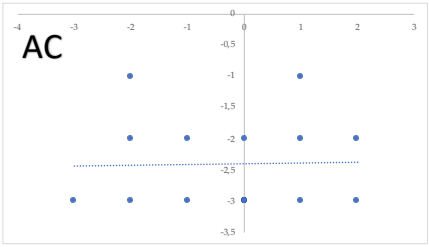
	Controlling rate	Work individually
ABC	-2	-3
	0	-3
Canteen	0	-1
	-1	-3
	2	-3
	2	-1
	1	1
	1	-2
	1	-2
	-2	-3
	2	-3
	1	2
	-1	-2
r=	0	-2
0,314140431	1	-2



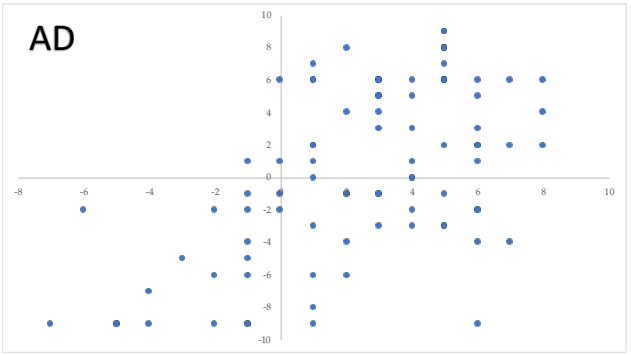
	Controlling rate	Work individually
123	-2	1
	0	-1
Model Hall	1	-1
	-2	0
	-2	-3
	1	-2
	-1	1
	-1	-3
	2	2
	1	-1
	-2	-2
	2	1
r=	-2	-2
0,385646019	0	1



	Controlling rate	Work individually
ABC	-3	-3
	-2	-3
Hallway spot	1	-1
	-1	-3
	2	-3
	0	-2
	-2	-2
	0	-3
	1	-3
	2	-2
	0	-3
	-2	-1
	-1	-2
r=	1	-2
0,025283393	0	-3

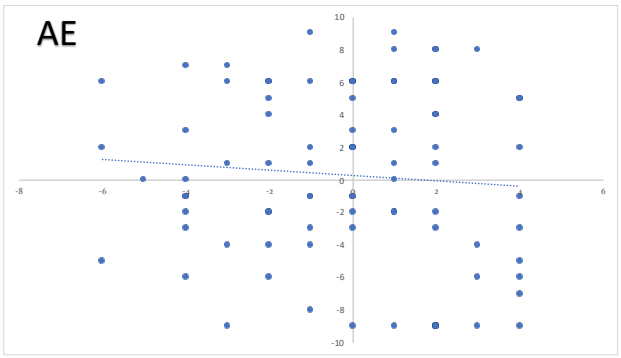


Arousal rate	Interaction rate
6	2
-1	-9
4	0
4	1
-1	-9
7	6
3	6
-4	-7
5	8
0	6
2	-6
7	2
6	-2
-2	-9
7	-4
6	2
-1	-6
8	6
6	3
-4	-9
5	8
5	9
-5	-9
4	-2
1	7
-7	-9
8	2
3	6
-5	-9
6	-2
6	6
-1	-5
3	3
6	5
6	-9
3	-1
1	0
1	-9
1	6
3	4
1	-8
8	4
2	8
1	6
-6	-2
5	6
5	6
-1	-2
4	5
0	-2
1	-6
5	9
5	6
5	-3
2	-1
4	-3
-2	-6
3	6
3	-1
6	-4
1	2
5	-1
-1	-4
5	6
5	-3
-3	-5
-1	-1
5	2
1	1
5	7
1	2
-2	-2
6	1
4	0
2	-4
4	6
3	5
-1	1
2	4
3	5
0	-1
0	1
2	-1
1	-3
5	8
4	3
3	-3



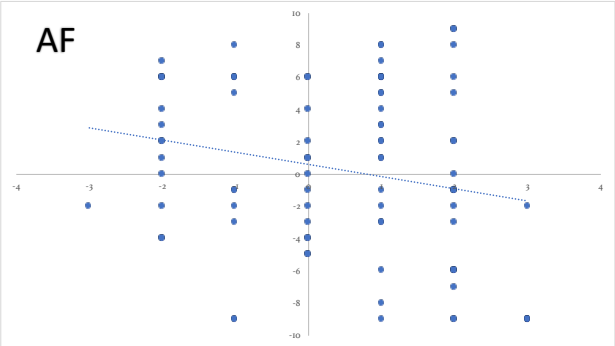
r=
0,556194448

Pleasure/ comfort-rate	Interaction rate
0	2
2	-9
1	0
-2	1
4	-9
1	6
1	6
4	-7
2	8
2	6
4	-6
4	2
2	-2
2	-9
-1	-4
0	2
3	-6
0	6
0	3
3	-9
3	8
1	9
1	-9
-2	-2
-4	7
0	-9
-1	2
0	6
2	-9
1	-2
2	6
4	-5
-4	3
0	5
-3	-9
0	-1
-5	0
2	-9
-6	6
-2	4
-1	-8
2	4
2	8
-2	6
0	-2
0	6
2	6
1	-2
-2	5
-2	-2
-2	-6
-1	9
-1	6
-1	-3
-4	-1
2	-3
-4	-6
-2	6
4	-1
-3	-4
-6	2
-1	-1
-2	-4
-3	6
4	-3
-6	-5
0	-1
2	2
-3	1
-3	7
0	2
-4	-2
-1	1
-4	0
3	-4
1	6
4	5
1	1
2	4
4	5
-4	-1
2	1
-1	-1
-4	-3
1	8
1	3
0	-3



r=
-0,082084

Controlling rate	Interaction rate
0	2
1	-9
-2	0
1	1
3	-9
0	6
2	6
2	-7
1	8
1	6
2	-6
-2	2
3	-2
-1	-9
-2	-4
2	2
2	-6
1	6
1	3
2	-9
-1	8
2	9
3	-9
-1	-2
-2	7
3	-9
2	2
-1	6
3	-9
1	-2
1	6
0	-5
-2	3
2	5
-1	-9
2	-1
0	0
2	-9
-2	6
1	4
1	-8
0	4
1	8
-2	6
-3	-2
1	6
0	6
-2	-2
1	5
0	-2
1	-6
2	9
-1	6
-1	-3
2	-1
2	-3
2	-6
1	6
2	-1
0	-4
1	2
1	-1
-2	-4
-1	6
1	-3
0	-5
-1	-1
1	2
1	1
1	7
-2	2
2	-2
0	1
2	0
0	-4
-2	6
1	5
-2	1
-2	4
-1	5
-1	-1
0	1
0	-1
1	-3
2	8
1	3
0	-3



r=

-0,2162535

annex 4

- principal component analysis (by G. Mariën, TU Delft)

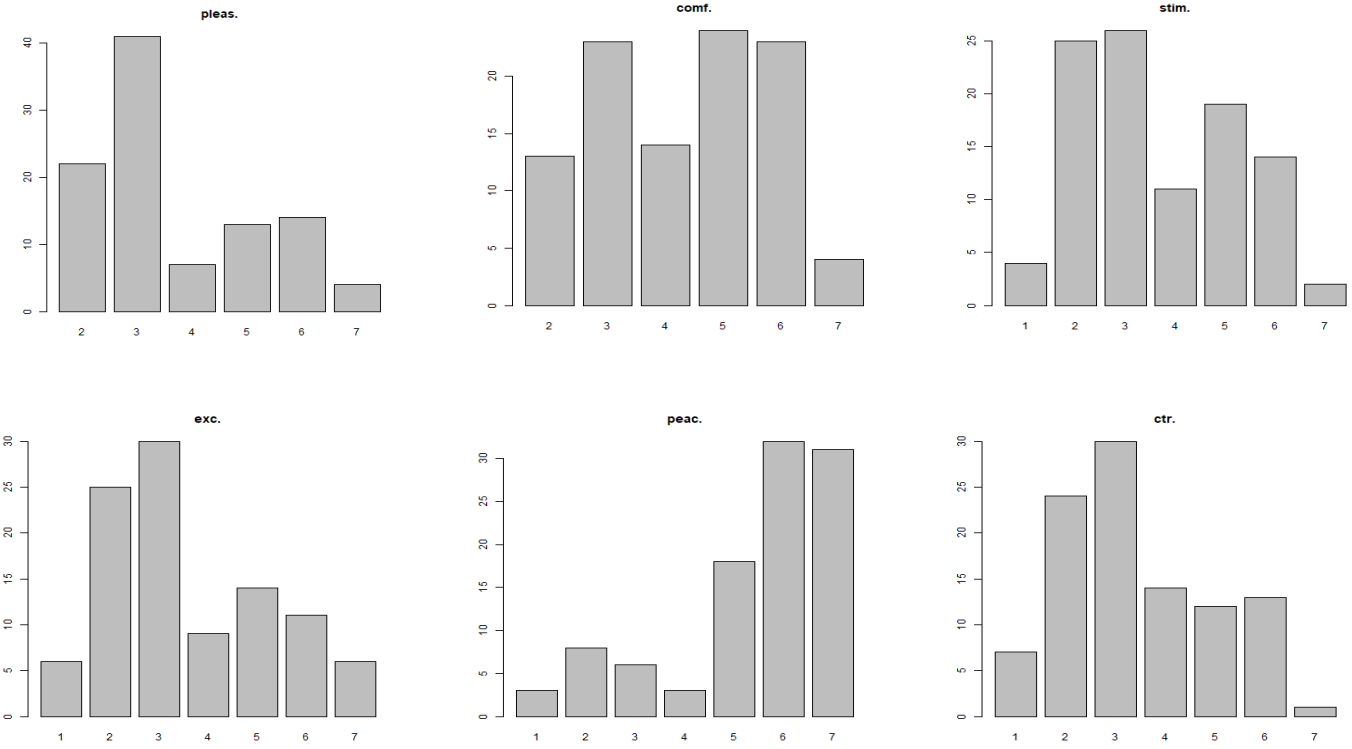
appreciation

D I A G N O S E

Descriptives

	pleas.	comf.	stim.	exc.	peac.	ctr.
1	Min. :2.000	Min. :2.000	Min. :1.000	Min. :1.000	Min. :1.000	Min. :1.000
2	1st Qu.:3.000	1st Qu.:3.000	1st Qu.:2.000	1st Qu.:2.000	1st Qu.:5.000	1st Qu.:2.000
3	Median :3.000	Median :5.000	Median :3.000	Median :3.000	Median :6.000	Median :3.000
4	Mean :3.683	Mean :4.327	Mean :3.653	Mean :3.564	Mean :5.426	Mean :3.426
5	3rd Qu.:5.000	3rd Qu.:6.000	3rd Qu.:5.000	3rd Qu.:5.000	3rd Qu.:7.000	3rd Qu.:5.000
6	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000
7	NA's :7	NA's :7	NA's :7	NA's :7	NA's :7	NA's :7

Barplots



Spearman correlations

	pleas.	comf.	stim.	exc.	peac.	ctr.
pleas.	1	0,530573702	0,515890605	0,372432675	0,439253755	0,259017502
comf.	0,530573702	1	0,187562361	0,125945104	0,506138217	0,168704609
stim.	0,515890605	0,187562361	1	0,58716486	0,130871029	0,244537788
exc.	0,372432675	0,125945104	0,58716486	1	-0,051807837	0,015035849
peac.	0,439253755	0,506138217	0,130871029	-0,051807837	1	0,334238433
ctr.	0,259017502	0,168704609	0,244537788	0,015035849	0,334238433	1

Determinant r-matrix = 0.185024238064683

Bartlett -- X-sq = 182.777605515553 ; p = 6.541531422665 57e-31 ; df = 15

Kaiser-Meyer-Olkin Measure of Sampling Accuracy

	Var.2
MSAtot	0,648038875
pleas.	0,67506136
comf.	0,697361421
stim.	0,646077945
exc.	0,573631236
peac.	0,617384951
ctr.	0,682399433

PRINCIPAL COMPONENT ANALYSIS

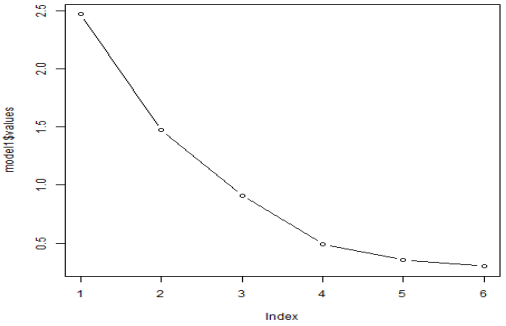
A. factors free

factor loadings

	PC1	PC2	PC3	PC4	PC5	PC6
pleas.	0,352747928	-0,001472759	-0,228368935	-0,177432329	-0,183492068	-1,433923452
comf.	0,275089715	0,220357128	-0,503548114	0,852721675	-0,247196965	0,663333942
stim.	0,281686187	-0,344516706	0,238152964	-0,461287371	-0,962685513	0,694828732
exc.	0,196818682	-0,516842485	-0,055442099	0,159944519	1,165575129	0,219492612
peac.	0,224045248	0,454854186	-0,001923935	-0,831711173	0,65070875	0,521805005
ctr.	0,190831342	0,192649004	0,855919487	0,591166369	0,150435654	-0,170279437

	PC1	PC2	PC3	PC4	PC5	PC6
SS loadings	2,470337252	1,474092855	0,910659226	0,49062756	0,353837357	0,30044575
Proportion Var	0,411722875	0,245682143	0,151776538	0,08177126	0,058972893	0,050074292
Cumulative Var	0,411722875	0,657405018	0,809181556	0,890952816	0,949925708	1
Proportion Explained	0,411722875	0,245682143	0,151776538	0,08177126	0,058972893	0,050074292
Cumulative Proportion	0,411722875	0,657405018	0,809181556	0,890952816	0,949925708	1

(weetje -- SS loadings = Eigenvalues)



B. Max 3 factors

	PC1	PC2
pleas.	0,352747928	-0,001472759
comf.	0,275089715	0,220357128
stim.	0,281686187	-0,344516706
exc.	0,196818682	-0,516842485
peac.	0,224045248	0,454854186
ctr.	0,190831342	0,192649004

	PC1	PC2
SS loadings	2,470337252	1,474092855
Proportion Var	0,411722875	0,245682143
Cumulative Var	0,411722875	0,657405018
Proportion Explained	0,62628496	0,37371504
Cumulative Proportion	0,62628496	1

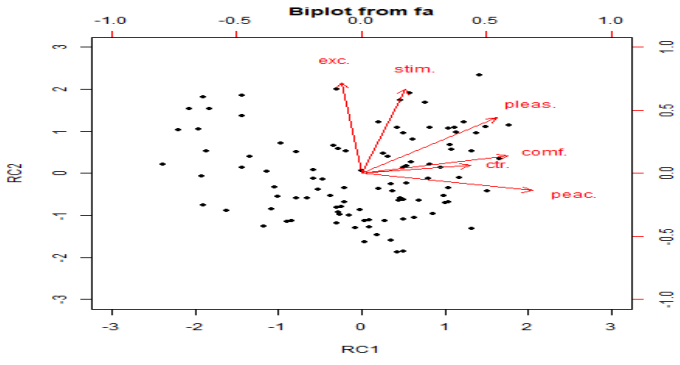
The reproduced correlations and the communalities (the diagonals)

	pleas.	comf.	stim.	exc.	peac.	ctr.
pleas.	0,759353735	0,591471513	0,607479251	0,425339207	0,4808393	0,410179918
comf.	0,591471513	0,567320228	0,307918384	0,082932903	0,593912213	0,412603875
stim.	0,607479251	0,307918384	0,742132207	0,725250327	0,044623908	0,183820303
exc.	0,425339207	0,082932903	0,725250327	0,816850434	-0,241733811	0,012848493
peac.	0,4808393	0,593912213	0,044623908	-0,241733811	0,755892714	0,451323847
ctr.	0,410179918	0,412603875	0,183820303	0,012848493	0,451323847	0,302880788

C. Rotation and factor scores

	RC1	RC2
pleas.	0,272875856	0,223544262
comf.	0,352456905	0,002396906
stim.	0,00143452	0,445013271
exc.	-0,173088234	0,525265848
peac.	0,460682074	-0,211803283
ctr.	0,269585743	-0,029219293

	RC1	RC2
SS loadings	2,074323002	1,870107105
Proportion Var	0,3457205	0,311684518
Cumulative Var	0,3457205	0,657405018
Proportion Explained	0,525886616	0,474113384
Cumulative Proportion	0,525886616	1



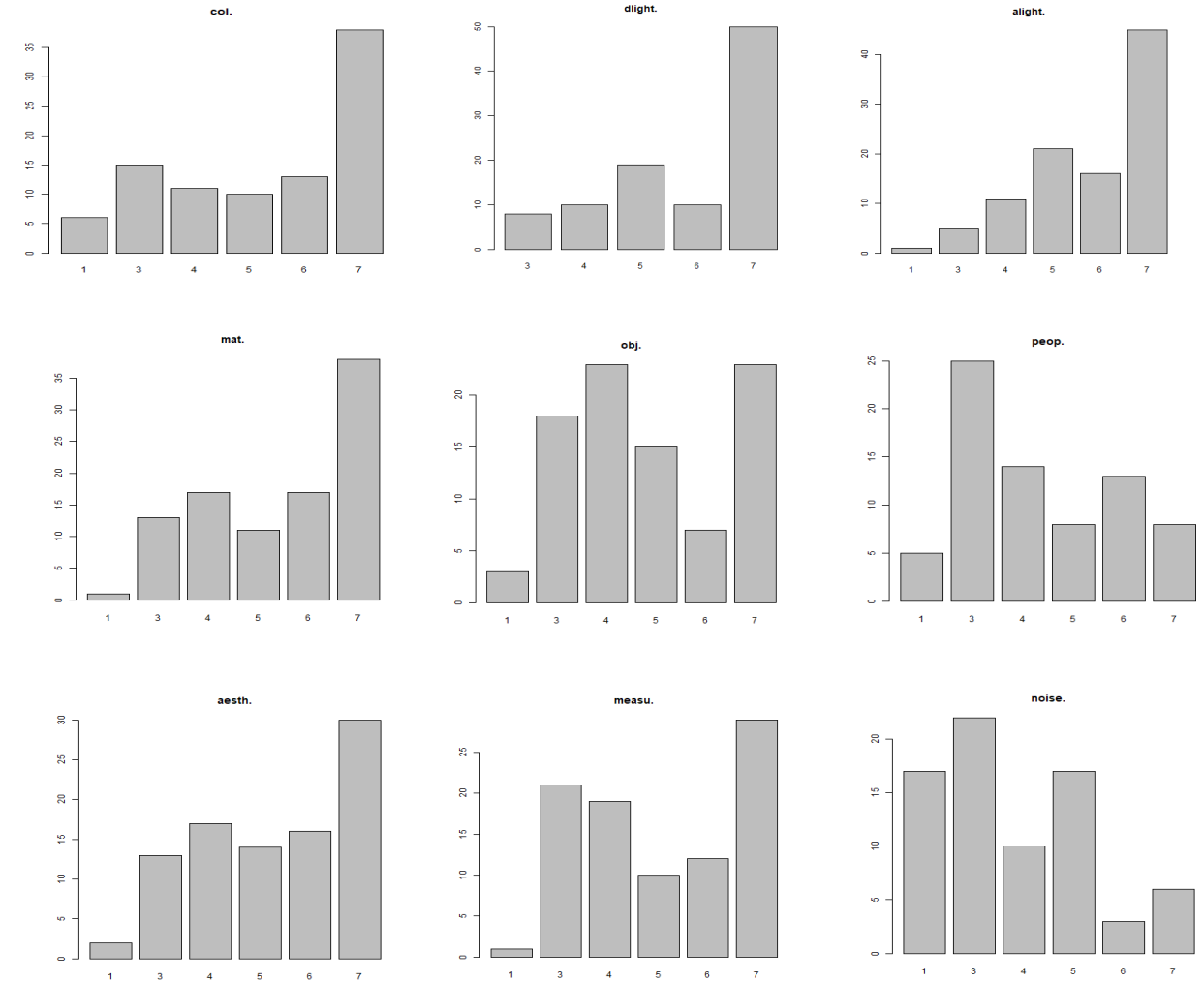
distract

D I A G N O S E

Descriptives

	col.	dlight.	alight.	mat.	obj.	peop.	aesth.	measu.	noise.
1	Min. :1.000	Min. :3.000	Min. :1.000	Min. :1.000	Min. :1.000	Min. :1.000	Min. :1.000	Min. :1.000	Min. :1.000
2	1st Qu.:4.000	1st Qu.:5.000	1st Qu.:5.000	1st Qu.:4.000	1st Qu.:4.000	1st Qu.:3.000	1st Qu.:4.000	1st Qu.:4.000	1st Qu.:3.000
3	Median :6.000	Median :7.000	Median :6.000	Median :6.000	Median :5.000	Median :4.000	Median :5.500	Median :5.000	Median :3.000
4	Mean :5.258	Mean :5.866	Mean :5.818	Mean :5.474	Mean :4.798	Mean :4.247	Mean :5.272	Mean :5.054	Mean :3.573
5	3rd Qu.:7.000	3rd Qu.:7.000	3rd Qu.:7.000	3rd Qu.:7.000	3rd Qu.:7.000	3rd Qu.:6.000	3rd Qu.:7.000	3rd Qu.:7.000	3rd Qu.:5.000
6	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000
7	NA's :15	NA's :11	NA's :9	NA's :11	NA's :19	NA's :35	NA's :16	NA's :16	NA's :33

Barplots



Spearman correlations

	col.	dlight.	alight.	mat.	obj.	peop.	aesth.	measu.	noise.
col.	1	0,255190742	0,289208194	0,673120488	0,472210702	0,345144677	0,619970303	0,423499097	0,248037157
dlight.	0,255190742	1	0,65126985	0,374163132	0,276148513	0,156981805	0,375581096	0,299165398	0,149257595
alight.	0,289208194	0,65126985	1	0,563332357	0,292290375	0,145550196	0,437723167	0,325002056	0,158258282
mat.	0,673120488	0,374163132	0,563332357	1	0,598451444	0,286543558	0,651509526	0,449356129	0,204615304
obj.	0,472210702	0,276148513	0,292290375	0,598451444	1	0,276587405	0,457741253	0,316156366	0,437619943
peop.	0,345144677	0,156981805	0,145550196	0,286543558	0,276587405	1	0,399178262	0,477444681	0,419061008
aesth.	0,619970303	0,375581096	0,437723167	0,651509526	0,457741253	0,399178262	1	0,592054575	0,25793597
measu.	0,423499097	0,299165398	0,325002056	0,449356129	0,316156366	0,477444681	0,592054575	1	0,314976758
noise.	0,248037157	0,149257595	0,158258282	0,204615304	0,437619943	0,419061008	0,25793597	0,314976758	1

Determinant r-matrix = 0.0199657140684784

Bartlett -- X-sq = 412.752659182233 ; p = 1.61130991550152e-65 ; df = 36

Kaiser-Meyer-Olkin Measure of Sampling Accuracy

	Var.2
MSAtot	0,796670028
col.	0,842899337
dlight.	0,736048347
alight.	0,688530928
mat.	0,770024263
obj.	0,803006356
peop.	0,793861393
aesth.	0,886923341
measu.	0,875676179
noise.	0,719373886

PRINCIPALE COMPONENTEN

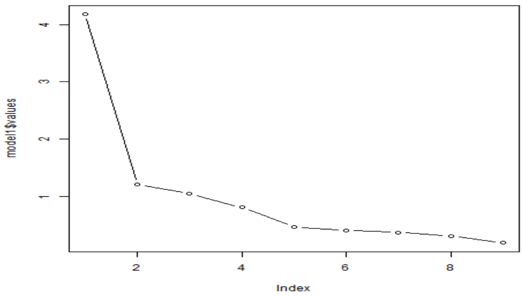
A. factors free

factor loadings

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9
col.	0,176167269	-0,150371316	-0,407647135	-0,138431336	0,299718031	0,557716836	0,934291534	0,405842207	0,746780269
dlight.	0,131109574	0,522185059	0,30150298	0,064426881	-0,344007231	0,972618218	0,147188881	-0,161686257	-0,469009425
alight.	0,150591258	0,486621114	0,225915656	0,124379025	0,536098529	-0,695105443	-0,035039228	0,331485203	0,982749636
mat.	0,196827955	0,109344137	-0,365088319	0,046347019	0,250761637	-0,378560433	-0,096695602	0,391154157	-1,679778842
obj.	0,167468939	-0,122594656	-0,284121011	0,571874266	-0,457028179	0,231291701	-0,893558356	0,186285509	0,671976901
peop.	0,138289448	-0,365919796	0,436188619	-0,287355583	0,68148549	0,455909943	-0,653899733	0,280516458	-0,140426295
aesth.	0,197302577	-0,0110231	-0,154749323	-0,323961381	0,038071449	-0,194942758	-0,150150814	-1,497986628	0,205775297
measu.	0,167940371	-0,124557548	0,222474063	-0,508282203	-0,942815919	-0,453244369	0,123742345	0,546274274	0,114440241
noise.	0,124861853	-0,340769046	0,404879817	0,651391037	-0,037365183	-0,270570292	0,715463113	-0,347429802	-0,3232981

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9
SS loadings	4,174734826	1,21251598	1,052894707	0,807651554	0,470920742	0,406255524	0,373006376	0,309577097	0,192443194
Proportion Var	0,463859425	0,134723998	0,116988301	0,089739062	0,052324527	0,045139503	0,041445153	0,034397455	0,021382577
Cumulative Var	0,463859425	0,598583423	0,715571724	0,805310785	0,857635312	0,902774815	0,944219968	0,978617423	1
Proportion Explained	0,463859425	0,134723998	0,116988301	0,089739062	0,052324527	0,045139503	0,041445153	0,034397455	0,021382577
Cumulative Proportion	0,463859425	0,598583423	0,715571724	0,805310785	0,857635312	0,902774815	0,944219968	0,978617423	1

(weetje -- SS loadings = Eigenvalues)



B. Max 3 factors

factor loadings

	PC1	PC2	PC3
col.	0,176167269	-0,150371316	-0,407647135
dlight.	0,131109574	0,522185059	0,30150298
alight.	0,150591258	0,486621114	0,225915656
mat.	0,196827955	0,109344137	-0,365088319
obj.	0,167468939	-0,122594656	-0,284121011
peop.	0,138289448	-0,365919796	0,436188619
aesth.	0,197302577	-0,0110231	-0,154749323
measu.	0,167940371	-0,124557548	0,222474063
noise.	0,124861853	-0,340769046	0,404879817

	PC1	PC2	PC3
SS loadings	4,174734826	1,21251598	1,052894707
Proportion Var	0,463859425	0,134723998	0,116988301
Cumulative Var	0,463859425	0,598583423	0,715571724
Proportion Explained	0,648236102	0,188274625	0,163489273
Cumulative Proportion	0,648236102	0,836510727	1

the reproduced correlations and the communalities (the diagonals)

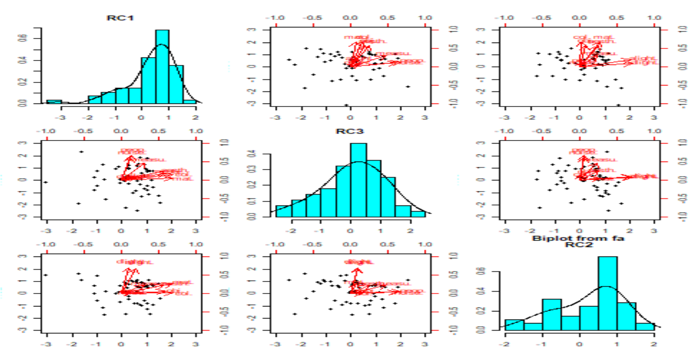
	col.	dlight.	alight.	mat.	obj.	peop.	aesth.	measu.	noise.
col.	0,75835327	0,150852677	0,252688749	0,745138605	0,669682934	0,308368964	0,678151242	0,442627717	0,275730639
dlight.	0,150852677	0,801253288	0,79320213	0,41167511	0,19358891	0,180866764	0,390656241	0,362484741	0,159028137
alight.	0,252688749	0,79320213	0,799959026	0,503380516	0,280668378	0,210402812	0,471190925	0,407376701	0,185313544
mat.	0,745138605	0,41167511	0,503380516	0,840539196	0,669770158	0,239024064	0,737686458	0,466036437	0,209676907
obj.	0,669682934	0,19358891	0,280668378	0,669770158	0,60038117	0,332192892	0,626599109	0,442547196	0,298329837
peop.	0,308368964	0,180866764	0,210402812	0,239024064	0,332192892	0,74107595	0,406632442	0,579350746	0,68004332
aesth.	0,678151242	0,390656241	0,471190925	0,737686458	0,626599109	0,406632442	0,705184896	0,541344048	0,365422894
measu.	0,442627717	0,362484741	0,407376701	0,466036437	0,442547196	0,579350746	0,541344048	0,56922901	0,527721611
noise.	0,275730639	0,159028137	0,185313544	0,209676907	0,298329837	0,68004332	0,365422894	0,527721611	0,624169707

C. Rotation and factor scores

factor loadings

	RC1	RC3	RC2
col.	0,41783304	-0,091169769	-0,19216204
dlight.	-0,162459329	-0,04036176	0,593926677
alight.	-0,093859577	-0,059355464	0,546061377
mat.	0,375338052	-0,203098799	0,043117159
obj.	0,326289354	-0,031184072	-0,127917377
peop.	-0,145494381	0,56305398	-0,071297827
aesth.	0,249832767	0,003320492	0,023869042
measu.	-0,009232272	0,299542527	0,058329233
noise.	-0,137513778	0,521550234	-0,068680463

	RC1	RC3	RC2
SS loadings	2,762344677	1,869479575	1,808321261
Proportion Var	0,306927186	0,207719953	0,200924585
Cumulative Var	0,306927186	0,514647139	0,715571724
Proportion Explained	0,428925817	0,2902853	0,280788882
Cumulative Proportion	0,428925817	0,719211118	1



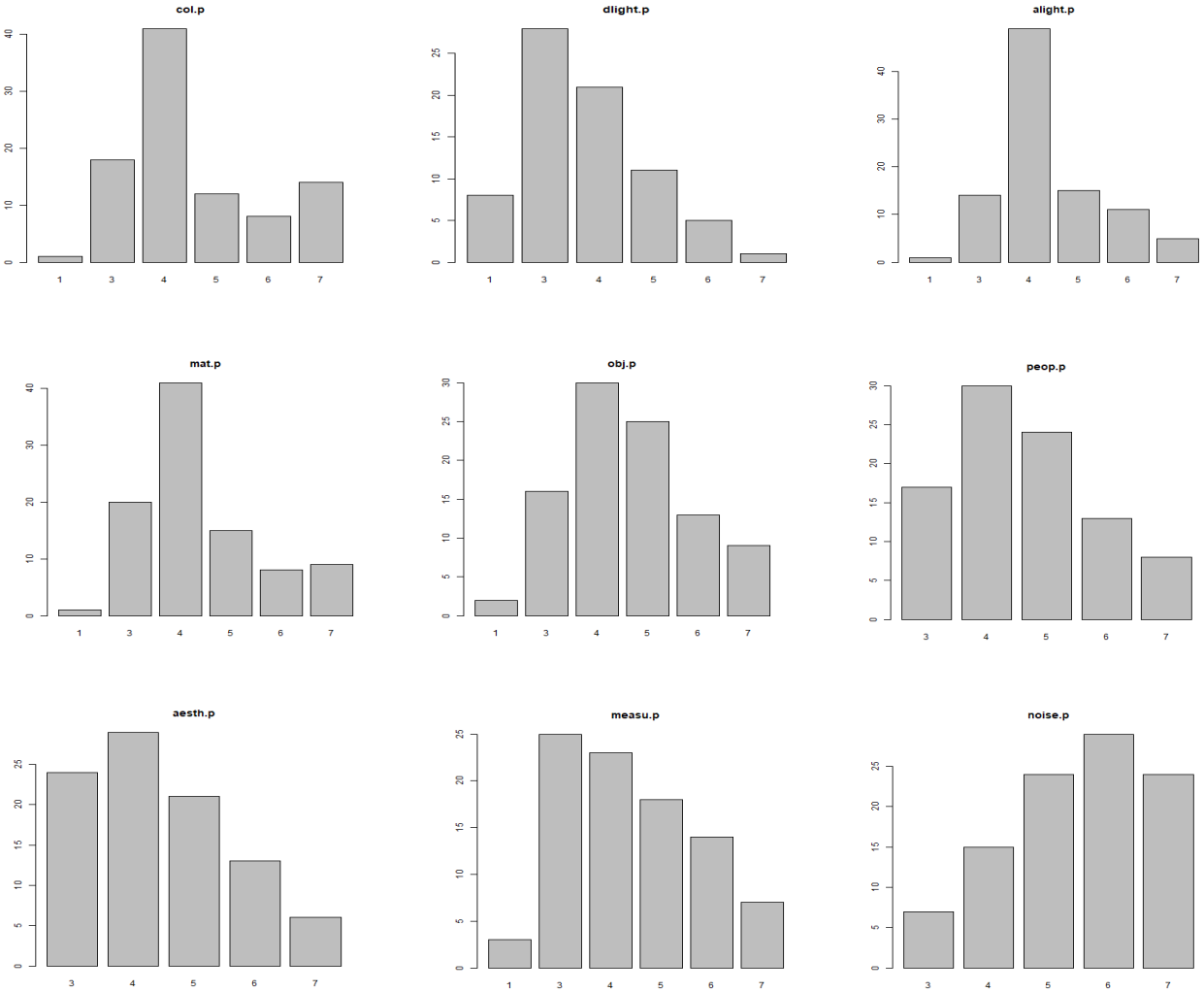
enjoy

D I A G N O S E

Descriptives

	col.p	dlight.p	alight.p	mat.p	obj.p	peop.p	aesth.p	measu.p	noise.p
1	Min. :1.000	Min. :1.000	Min. :1.000	Min. :1.000	Min. :1.000	Min. :3.00	Min. :3.000	Min. :1.000	Min. :3.000
2	1st Qu.:4.000	1st Qu.:3.000	1st Qu.:4.000	1st Qu.:4.000	1st Qu.:4.000	1st Qu.:4.00	1st Qu.:3.000	1st Qu.:3.000	1st Qu.:5.000
3	Median :4.000	Median :4.000	Median :4.000	Median :4.000	Median :4.000	Median :4.00	Median :4.000	Median :4.000	Median :6.000
4	Mean :4.521	Mean :3.622	Mean :4.368	Mean :4.372	Mean :4.589	Mean :4.62	Mean :4.441	Mean :4.367	Mean :5.485
5	3rd Qu.:5.000	3rd Qu.:4.000	3rd Qu.:5.000	3rd Qu.:5.000	3rd Qu.:5.000	3rd Qu.:5.00	3rd Qu.:5.000	3rd Qu.:5.000	3rd Qu.:6.000
6	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.000	Max. :7.00	Max. :7.000	Max. :7.000	Max. :7.000
7	NA's :14	NA's :34	NA's :13	NA's :14	NA's :13	NA's :16	NA's :15	NA's :18	NA's :9

Barplots



Spearman correlations

	col.p	dlight.p	alight.p	mat.p	obj.p	peop.p	aesth.p	measu.p	noise.p
col.p	1	0,194337066	-0,003447749	0,436319977	0,374966208	0,35292386	0,402938394	0,448624832	0,113749422
dlight.p	0,194337066	1	0,483195328	0,215685708	0,17243781	0,314228565	0,243085473	0,387916173	0,007551718
alight.p	-0,003447749	0,483195328	1	0,241848696	0,197518712	0,052681221	0,19241254	0,198339176	0,158089777
mat.p	0,436319977	0,215685708	0,241848696	1	0,42062725	0,013406066	0,336671866	0,254264975	-0,014443379
obj.p	0,374966208	0,17243781	0,197518712	0,42062725	1	0,322473553	0,24967217	0,225961557	0,453226807
peop.p	0,35292386	0,314228565	0,052681221	0,013406066	0,322473553	1	0,379229837	0,403036496	0,468655479
aesth.p	0,402938394	0,243085473	0,19241254	0,336671866	0,24967217	0,379229837	1	0,529800138	0,044952284
measu.p	0,448624832	0,387916173	0,198339176	0,254264975	0,225961557	0,403036496	0,529800138	1	0,227288078
noise.p	0,113749422	0,007551718	0,158089777	-0,014443379	0,453226807	0,468655479	0,044952284	0,227288078	1

Determinant r-matrix = 0.06509037029234 16

Bartlett -- X-sq = 288.012484676048 ; p = 4.51236491136 33e-41 ; df = 36

Kaiser-Meyer-Olkin Measure of Sampling Accuracy

	Var.2
MSAtot	0,690798423
col.p	0,755556116
dlight.p	0,620111637
alight.p	0,618051934
mat.p	0,676211109
obj.p	0,741396031
peop.p	0,667238158
aesth.p	0,759119787
measu.p	0,785834927
noise.p	0,475916761

PRINCIPALE COMPONENTEN

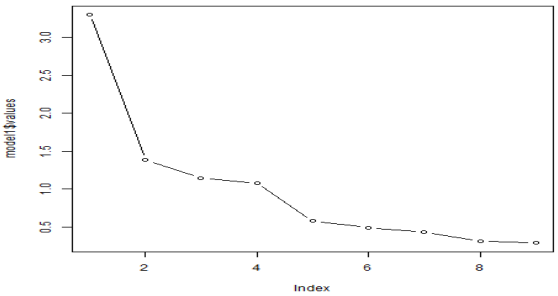
A. factors free

factor loadings

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9
col.p	0,210918019	-0,057499123	-0,410635388	0,09798869	-0,483925968	0,33738454	0,784278662	-0,762969252	0,181452785
dlight.p	0,15794125	-0,180110556	0,431216732	-0,418112715	-0,650567398	0,122412609	-0,431495306	-0,125181625	0,682623212
alight.p	0,134901292	-0,272305281	0,583618241	0,103151997	0,506235316	0,225855589	0,670377952	-0,211173251	-0,440172811
mat.p	0,194207708	-0,348747689	-0,148811908	0,373742667	-0,094302877	0,017142834	-0,047953031	1,270232235	0,292326787
obj.p	0,207417461	0,06380222	0,075682249	0,510626922	-0,08793732	-0,160020611	-0,857833749	-0,683584392	-0,550083938
peop.p	0,180643566	0,429004514	0,001738179	-0,22793006	-0,044568954	0,789318662	-0,085485179	0,598139887	-0,747604181
aesth.p	0,20354498	-0,07827093	-0,283497724	-0,284456098	0,884379418	0,149764399	-0,392003375	-0,297051879	0,641003109
measu.p	0,220322766	0,04560637	-0,079895509	-0,354783272	-0,046858293	-1,050866897	0,261463428	0,188522321	-0,622209949
noise.p	0,110867796	0,542910087	0,252269695	0,272380465	0,103244314	-0,294405773	0,335231904	0,13672893	1,012762032

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9
SS loadings	3,29744297	1,383902387	1,144885747	1,077106306	0,578941271	0,489674308	0,42907701	0,310230391	0,28873961
Proportion	0,366382552	0,153766932	0,127209527	0,119678478	0,064326808	0,054408256	0,047675223	0,034470043	0,032082179
Cumulative	0,366382552	0,520149484	0,647359012	0,76703749	0,831364298	0,885772554	0,933447778	0,967917821	1
Proportion	0,366382552	0,153766932	0,127209527	0,119678478	0,064326808	0,054408256	0,047675223	0,034470043	0,032082179
Cumulative	0,366382552	0,520149484	0,647359012	0,76703749	0,831364298	0,885772554	0,933447778	0,967917821	1

(weetje -- SS loadings = Eigenvalues)



B. Max 3 factors

factor loadings

	PC1	PC2	PC3
col.p	0,210918019	-0,057499123	-0,410635388
dlight.p	0,15794125	-0,180110556	0,431216732
alight.p	0,134901292	-0,272305281	0,583618241
mat.p	0,194207708	-0,348747689	-0,148811908
obj.p	0,207417461	0,06380222	0,075682249
peop.p	0,180643566	0,429004514	0,001738179
aesth.p	0,20354498	-0,07827093	-0,283497724
measu.p	0,220322766	0,04560637	-0,079895509
noise.p	0,110867796	0,542910087	0,252269695

	PC1	PC2	PC3
SS loadings	3,29744297	1,383902387	1,144885747
Proportion	0,366382552	0,153766932	0,127209527
Cumulative	0,366382552	0,520149484	0,647359012
Proportion	0,565965014	0,237529607	0,196505378
Cumulative	0,565965014	0,803494622	1

the reproduced correlations and the communalities (the diagonals)

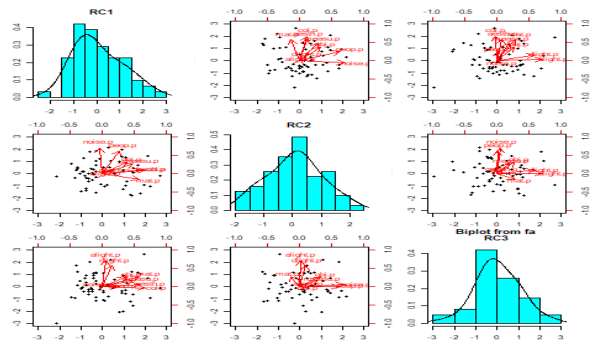
	col.p	dlight.p	alight.p	mat.p	obj.p	peop.p	aesth.p	measu.p	noise.p
col.p	0,711061205	0,149946278	0,025230986	0,563886132	0,427916914	0,366098755	0,628008434	0,543255988	0,058688261
dlight.p	0,149946278	0,577096924	0,65547302	0,369702866	0,376970362	0,163221461	0,216310722	0,317473274	0,145709453
alight.p	0,025230986	0,65547302	0,786343909	0,352902016	0,328861774	0,042565158	0,122507491	0,238265963	0,072467574
mat.p	0,563886132	0,369702866	0,352902016	0,672059083	0,380615255	0,094576913	0,537391606	0,450366559	-0,177112192
obj.p	0,427916914	0,376970362	0,328861774	0,380615255	0,483087824	0,459995112	0,421362748	0,494535904	0,341403003
peop.p	0,366098755	0,163221461	0,042565158	0,094576913	0,459995112	0,707297137	0,334839982	0,470038613	0,664404568
aesth.p	0,628008434	0,216310722	0,122507491	0,537391606	0,421362748	0,334839982	0,567560246	0,510464466	0,07024232
measu.p	0,543255988	0,317473274	0,238265963	0,450366559	0,494535904	0,470038613	0,510464466	0,540155259	0,286596267
noise.p	0,058688261	0,145709453	0,072467574	-0,177112192	0,341403003	0,664404568	0,07024232	0,286596267	0,781569517

C. Rotation and factor scores

factor loadings

	RC1	RC2	RC3
col.p	0,413535696	-0,049070014	-0,207350772
dlight.p	-0,077523418	0,006990812	0,487108169
alight.p	-0,159679414	-0,049796022	0,636381166
mat.p	0,323119188	-0,252589903	0,11523411
obj.p	0,103669082	0,162764453	0,12482381
peop.p	0,034666861	0,453405895	-0,099505251
aesth.p	0,340423816	-0,042297678	-0,101244205
measu.p	0,206946614	0,118113636	0,015087168
noise.p	-0,190928897	0,577784708	0,01984986

	RC1	RC2	RC3
SS loadings	2,481570156	1,73539636	1,609264587
Proportion	0,275730017	0,192821818	0,178807176
Cumulative	0,275730017	0,468551835	0,647359012
Proportion	0,425930608	0,29785917	0,276210222
Cumulative	0,425930608	0,723789778	1



annex 5

- variance analysis (by G. Mariën, TU Delft)

RC1appreciation

	Gem RC1appreciation per ruimte
1	0.13689624382779
2	-1.5022918487040 9
3	0.45004372232 7165
4	0.45724986321 9998
5	-0.07332920218 37965
6	0.46174603326 7332

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
rfac	5	46,95420906	9,390841813	16,81811047	7,10924E-12
Residuals	95	53,04579094	0,558376747		

	alt$coefficients
(Intercept)	0,136896244
rfac2	-1,639188093
rfac3	0,313147478
rfac4	0,320353619
rfac5	-0,210225446
rfac6	0,324849789

	r.squared	adj.r.squared
1	0,469542091	0,441623253

RC2appreciation

	Gem RC2appreciation per ruimte
1	-0.27640220934 8276
2	0.84563420850 4819
3	-0.86071499792 2181
4	-0.02213645213 36082
5	-0.39576505480 0246
6	0.71143715430 9743

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
rfac	5	36,86338219	7,372676438	11,09347136	1,96949E-08
Residuals	95	63,13661781	0,664595977		

	alt$coefficients
(Intercept)	-0,276402209
rfac2	1,122036418
rfac3	-0,584312789
rfac4	0,254265757
rfac5	-0,119362845
rfac6	1,047839164

	r.squared	adj.r.squared
1	0,368633822	0,335404023

RC1distract

	Gem RC1distract per ruimte
1	-0.16805963 1019594
2	0.60311503 1248476
3	0.61259977 5100922
4	0.18570884 9075699
5	0.38543005 5245643
6	-0.33584600 0694865

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
rfac	5	7,079949682	1,415989936	1,933408414	0,10529312
Residuals	50	36,61900729	0,732380146		

	alt$coefficients
(Intercept)	-0,168059631
rfac2	0,771174662
rfac3	0,780659406
rfac4	0,35376848
rfac5	0,553489686
rfac6	-0,16778637

	r.squared	adj.r.squared
1	0,162016446	0,07821809

RC2distract

	Gem RC2distract per ruimte
1	0.82298045 9726469
2	0.04785996 31177062
3	0.34724805 9227226
4	0.49203403 0792896
5	-0.13284453 04068766
6	0.10978453 23137162

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
rfac	5	4,618352772	0,923670554	1,288829277	0,283618584
Residuals	50	35,8337047	0,716674094		

	alt$coefficients
(Intercept)	0,822980461
rfac2	-0,775120497
rfac3	-0,47573 24
rfac4	-0,330946429
rfac5	-0,955824499
rfac6	-0,713195937

	r.squared	adj.r.squared
1	0,114168551	0,025585406

RC1enjoy

	Gem RC1enjoy per ruimte
1	0.05755199368 18155
2	0.42612102 2909041
3	0.75145941 8953506
4	-0.16694254 8248507
5	-0.86571940 4276955
6	0.53328326 549629

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
rfac	5	19,32358811	3,864717622	4,708036229	0,001167895
Residuals	56	45,9690997	0,820876 78		

	alt$coefficients
(Intercept)	0,057751994
rfac2	0,368569209
rfac3	0,693907425
rfac4	-0,224494542
rfac5	-0,923271398
rfac6	0,475731272

	r.squared	adj.r.squared
1	0,295953326	0,233092016

RC2enjoy

	Gem RC2enjoy per ruimte
1	0.29143880 6135432
2	0.07112097 42255734
3	-0.58037711 6422303
4	0.45168355 5405153
5	-0.01238574 5143088
6	0.09402514 5546477

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
rfac	5	4,808873614	0,961774723	1,04915961	0,398277295
Residuals	56	51,33573954	0,916709635		

	alt$coefficients
(Intercept)	0,291438806
rfac2	-0,220317832
rfac3	-0,871815923
rfac4	0,160244749
rfac5	-0,303824552
rfac6	-0,197416292

	r.squared	adj.r.squared
1	0,085651558	0,004013305

annex 6

- multi variance analysis (by G. Mariën, TU Delft)

emotion

	Gem score	pleas.	comf.	stim.	exc.	peac.	ctr.
1	1	3,83	4,61	3,50	2,83	5,72	2,78
2	2	2,88	3,19	3,94	5,25	2,75	2,44
3	3	3,31	4,88	2,38	2,38	5,81	4,31
4	4	4,11	4,67	3,83	3,56	6,50	3,44
5	5	3,24	3,65	3,41	2,88	5,76	3,47
6	6	4,69	4,94	4,88	4,63	5,81	4,19

Multivariate analysis of variance

testresultaten: overall, per dependent vars

	Df	Pillai	approx F	num Df	den Df	Pr(>F)	rubriek
rfac	5	1,19	4,90	30,00	470,00	0,00	overal
Residuals	95						overal

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	dependent	uitvoer
rfac	5	35,90	7,18	3,63	0,00	Response pleas.	rfac
Residuals	95	187,96	1,98			Response pleas.	Residuals
3	5	42,93	8,59	4,71	0,00	Response comf.	rfac
4	95	173,29	1,82			Response comf.	Residuals
5	5	53,32	10,66	5,34	0,00	Response stim.	rfac
6	95	189,56	2,00			Response stim.	Residuals
7	5	103,62	20,72	11,37	0,00	Response exc.	rfac
8	95	173,21	1,82			Response exc.	Residuals
9	5	143,65	28,73	19,35	0,00	Response peac.	rfac
10	95	141,04	1,48			Response peac.	Residuals
11	5	45,09	9,02	4,67	0,00	Response ctr.	rfac
12	95	183,60	1,93			Response ctr.	Residuals

coëfficiënten

	pleas.	comf.	stim.	exc.	peac.	ctr.
(Intercept)	3,83	4,61	3,50	2,83	5,72	2,78
rfac2	-0,96	-1,42	0,44	2,42	-2,97	-0,34
rfac3	-0,52	0,26	-1,13	-0,46	0,09	1,53
rfac4	0,28	0,06	0,33	0,72	0,78	0,67
rfac5	-0,60	-0,96	-0,09	0,05	0,04	0,69
rfac6	0,85	0,33	1,38	1,79	0,09	1,41

verklaarde variantie

	r.squared	adj.r.squared
1	0,22	0,18

distract

	Gem score	col.	dlight.	alight.	mat.	obj.	peop.	aesth.	measu.	noise.
1	1	4,83	7,00	6,50	5,50	4,83	3,67	5,50	4,50	3,50
2	2	6,54	6,23	6,15	6,38	6,00	4,31	5,62	5,31	5,15
3	3	6,67	6,42	6,58	6,83	5,50	5,75	6,25	6,17	4,42
4	4	5,14	6,14	6,29	5,86	4,43	3,29	5,71	5,86	2,14
5	5	5,90	5,80	5,70	5,80	5,10	4,40	5,80	5,40	3,30
6	6	4,38	5,75	6,13	5,25	4,88	4,38	4,88	4,50	3,88

Multivariate analysis of variance

testresultaten: overall, per dependent vars

	Df	Pillai	approx F	num Df	den Df	Pr(>F)	rubriek
rfac	5	1,21	1,64	45,00	230,00	0,01	overal
Residuals	50						overal

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	dependent	uitvoer
rfac	5	41,07	8,21	3,93	0,00	Response col.	rfac
Residuals	50	104,36	2,09			Response col.	Residuals
3	5	7,66	1,53	0,99	0,43	Response dlight.	rfac
4	50	77,18	1,54			Response dlight.	Residuals
5	5	4,92	0,98	0,90	0,49	Response alight.	rfac
6	50	54,51	1,09			Response alight.	Residuals
7	5	16,64	3,33	2,44	0,05	Response mat.	rfac
8	50	68,20	1,36			Response mat.	Residuals
9	5	15,18	3,04	1,21	0,32	Response obj.	rfac
10	50	125,32	2,51			Response obj.	Residuals
11	5	33,78	6,76	2,72	0,03	Response peop.	rfac
12	50	124,06	2,48			Response peop.	Residuals
13	5	9,48	1,90	0,92	0,47	Response aesth.	rfac
14	50	102,73	2,05			Response aesth.	Residuals
15	5	19,93	3,99	1,52	0,20	Response measu.	rfac
16	50	131,19	2,62			Response measu.	Residuals
17	5	49.77	9,95	3,95	0,00	Response noise.	rfac
18	50	125,94	2,52			Response noise.	Residuals

coëfficiënten

	col.	dlight.	alight.	mat.	obj.	peop.	aesth.	measu.	noise.
(Intercept)	4,83	7,00	6,50	5,50	4,83	3,67	5,50	4,50	3,50
rfac2	1,71	-0,77	-0,35	0,88	1,17	0,64	0,12	0,81	1,65
rfac3	1,83	-0,58	0,08	1,33	0,67	2,08	0,75	1,67	0,92
rfac4	0,31	-0,86	-0,21	0,36	-0,40	-0,38	0,21	1,36	-1,36
rfac5	1,07	-1,20	-0,80	0,30	0,27	0,73	0,30	0,90	-0,20
rfac6	-0,46	-1,25	-0,38	-0,25	0,04	0,71	-0,63	0,00	0,37

verklaarde variantie

	r.squared	adj.r.squared
1	0,23	0,15

distrPeopleNoise

	Gem score	peop.	noise.
1	1	3,57	3,43
2	2	4,43	5,14
3	3	5,36	4,36
4	4	3,00	2,00
5	5	4,27	3,09
6	6	4,38	3,88

Multivariate analysis of variance

testresultaten: overall, per dependent vars

	Df	Pillai	approx F	num Df	den Df	Pr(>F)	rubriek
rfac	5	0,44	3,15	10,00	112,00	0,00	overal
Residuals	56						overal

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	dependent	uitvoer
rfac	5	33,13	6,63	2,53	0,04	Response peop.	rfac
Residuals	56	146,41	2,61			Response peop.	Residuals
3	5	61,96	12,39	5,16	0,00	Response noise.	rfac
4	56	134,43	2,40			Response noise.	Residuals

coëfficiënten

	peop.	noise.
(Intercept)	3,57	3,43
rfac2	0,86	1,71
rfac3	1,79	0,93
rfac4	-0,57	-1,43
rfac5	0,70	-0,34
rfac6	0,80	0,45

verklaarde variantie

	r.squared	adj.r.squared
1	0,29	0,22

enjoy

	Gem score	col.p	dlight.p	alight.p	mat.p	obj.p		peop.p	aesth.p	measu.p	noise.p
1	1	4,89	3,33	4,78	4,22		4,78	4,67	4,67	4,56	6,00
2	2	4,91	4,00	4,45	4,73		4,09	5,36	5,18	4,64	5,36
3	3	5,43	3,43	4,29	5,00		4,86	4,00	5,00	4,71	5,00
4	4	4,33	3,11	4,78	4,44		4,89	5,00	4,33	4,33	6,11
5	5	3,62	3,62	4,00	3,46		3,92	4,15	3,54	3,85	5,54
6	6	5,00	4,23	4,46	4,92		4,92	5,00	4,92	5,15	5,46

Multivariate analysis of variance

testresultaten: overall, per dependent vars

	Df	Pillai	approx F	num Df	den Df	Pr(>F)	rubriek
rfac	5	0,93	1,32	45,00	260,00	0,10	overal
Residuals	56						overal

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	dependent	uitvoer
rfac	5	21,88	4,38	2,39	0,05	Response col.p	rfac
Residuals	56	102,59	1,83			Response col.p	Residuals
3	5	9,56	1,91	1,12	0,36	Response dlight.p	rfac
4	56	95,99	1,71			Response dlight.p	Residuals
5	5	4,74	0,95	0,71	0,62	Response alight.p	rfac
6	56	74,50	1,33			Response alight.p	Residuals
7	5	18,98	3,80	2,53	0,04	Response mat.p	rfac
8	56	84,11	1,50			Response mat.p	Residuals
9	5	11,38	2,28	1,30	0,28	Response obj.p	rfac
10	56	98,06	1,75			Response obj.p	Residuals
11	5	14,10	2,82	2,38	0,05	Response peop.p	rfac
12	56	66,24	1,18			Response peop.p	Residuals
13	5	21,45	4,29	3,54	0,01	Response aesth.p	rfac
14	56	67,79	1,21			Response aesth.p	Residuals
15	5	11,85	2,37	1,36	0,25	Response measu.p	rfac
16	56	97,58	1,74			Response measu.p	Residuals
17	5	7,20	1,44	1,01	0,42	Response noise.p	rfac
18	56	79,90	1,43			Response noise.p	Residuals

coëfficiënten

	col.p	dlight.p	alight.p	mat.p	obj.p	peop.p		aesth.p	measu.p	noise.p
(Intercept)	4,89	3,33	4,78	4,22	4,78		4,67	4,67	4,56	6,00
rfac2	0,02	0,67	-0,32	0,51	-0,69		0,70	0,52	0,08	-0,64
rfac3	0,54	0,10	-0,49	0,78	0,08		-0,67	0,33	0,16	-1,00
rfac4	-0,56	-0,22	0,00	0,22	0,11		0,33	-0,33	-0,22	0,11
rfac5	-1,27	0,28	-0,78	-0,76	-0,85		-0,51	-1,13	-0,71	-0,46
rfac6	0,11	0,90	-0,32	0,70	0,15		0,33	0,26	0,60	-0,54

verklaarde variantie

	r.squared	adj.r.squared
1	0,18	0,11