

Does one size fit all? Unraveling the extent to which an individual's sensory processing style is related to the perception and judgment of eHealth interventions. A cross-sectional study.

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Abstract

Background

eHealth as a central or supplementary part of treatment is increasingly explored in mental healthcare and is considered to become increasingly relevant in the future. Individual differences in sensory processing are a factor that might be important for understanding design incompatibilities and increasing the individual fit and general accessibility and usability of eHealth interventions.

Aim

This study had two main goals. Firstly, it aimed to investigate the relationship between sensory processing and website experience in terms of usability, engagement and overall website rating in an exploratory fashion. Secondly, it aimed to initially test a newly designed four-item measure of visual sensory appeal, called the “Visual Sensory Appeal Questionnaire” in terms of reliability and validity.

Methods

A cross-sectional design was used. Using screenshots of two eHealth websites, Minddistrict and Therapieland, an online survey containing multiple questionnaires was created and forty-six participants were included in the analysis. The online survey contained the Adult & Adolescent Sensory Profile (AASP), the System Usability Scale (SUS), the Twente Engagement with eHealth Technologies Scale (TWEETS), the newly developed Visual Sensory Appeal Questionnaire (VSAQ) and a rating scale concerning the overall website rating.

Results and Discussion

Overall, there were significant relationships between sensory processing and the overall website rating and engagement for the website Minddistrict, but not for Therapieland. These relationships were the strongest for the case of “Low Registration” and “Sensation Seeking”

($r = -.25 - .38, p < .01$). Concerning the VSAQ, the analysis indicated that the questionnaire is reliable ($\alpha = .774$) and valid in terms of discriminant and convergent validity. Further research is recommended into the factors that influence the relationship between sensory processing and website experience as well as to investigate the specific design elements that lead to website preference and higher usability using eye-tracking. A limitation of this study was the use of screenshots instead of actual use, as this might have influenced the results.

Keywords: sensory processing, engagement, eHealth, usability, visual appeal

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Introduction

While the possibilities of digitalization have increasingly been explored in mental healthcare for the last decade, the current COVID-19 pandemic highlighted the need for online treatments and their advantages for the future and present in a dramatic manner (Wind et al., 2020). eHealth interventions, meaning the use of digital technologies for healthcare purposes, are a promising tool in order to provide different target groups with efficient, personalized treatments and interventions for behavior change that reduce the need of physical attendance and enhance flexible scheduling (Bensley et al., 2014; van der Krieke et al., 2014).

Usability and Engagement

In order for eHealth interventions to be effective, a high degree of usability is considered to be very important (Sin et al., 2019). Usability can be defined as the “*extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use*”, and in turn requires that that interventions fit the needs and characteristics of its users (Bensley et al., 2014; International Organization For Standardization, 1998). Engagement in the context of eHealth can be defined as “*the process of involving users in health content in ways that motivate and lead to health behavior change*” (Craig Lefebvre et al., 2010, p. 667). Engagement is a critical concept to account for in the context of sensory processing and eHealth, as it is considered to be an important factor affecting usability and is characterized by, amongst others, visual aesthetics, attention and sensory appeal (O’Brien & Toms, 2008).

Accessibility

Despite the availability of several guidelines for creating web-content with a high accessibility and usability, such as the Web Content Accessibility Guidelines (Caldwell et al., 2008), the degree to which those guidelines are applied in eHealth websites is low according to authors such as Martins et al. (2017, 2016). If the content and design of eHealth

interventions do not fit the specific requirements for high usability of all of its target groups, vulnerable individuals and populations might not profit from otherwise beneficial services. To mention a specific example of this, Brunette et al. (2011) found that smoking cessation websites do not meet the needs of individuals with severe mental illnesses, since the designs were too complex and did not meet the usability related requirements specific to severe mental illness. This shows how the lack of accessibility of eHealth applications can exclude vulnerable populations from their benefits and reduce their usability if, for example, the specific users' cognitive abilities are not taken into account. Since eHealth interventions are increasingly used to support individuals suffering from mental illness, it is crucial to explore the specific factors which explain incompatibilities in order to adapt eHealth interventions to better suit the needs of different users (Brunette et al., 2011; Naslund et al., 2015; Rotondi et al., 2013). Especially since people in need of mental healthcare often suffer from stigmatization, isolation and social disconnection, eHealth can be beneficial as a treatment or supplementary tool due to its accessible and remote nature (Teachman, 2014; Wind et al., 2020). But the advantages of eHealth might be inhibited because the design often does not fit these target groups (Teachman, 2014).

Sensory Processing

The individual differences in sensory processing are commonly conceptualized by referring to different neurological thresholds that result in higher or lower sensitivity to sensory stimuli, and active or passive reactions to stimulation, as in the four-quadrant model of sensory processing by Dunn (1997). According to this model, individuals have a) a tendency to be either highly or lowly sensitive to sensory information and b) a tendency to either act in accordance to their sensory sensitivity or to counteract it (Dunn, 1997). The four quadrants are “Low registration” and the behavioral response “Sensation Seeking”, as well as “Sensory Sensitivity” with the behavioral response “Sensation Avoiding”. Based on the four-quadrant

model, the Adult & Adolescent Sensory Processing Profile (AASP) was developed, which is the most frequently used self-report measure of sensory processing (DuBois et al., 2017). The AASP is a 60-item self-report questionnaire that aims to assess sensory processing on different sensory dimensions (such as visual or auditory) using a five-point scale (Brown & Dunn, 2002; DuBois et al., 2017).

Sensory Processing and Website interaction

Research on sensory processing has mostly focused on individuals diagnosed with Autism Spectrum Disorder, who often display various forms of sensory processing abnormalities (Crane et al., 2009; DuBois et al., 2017; Liss et al., 2008). These abnormalities are visible in the scores on measures such as the AASP and make autistic individuals an example of a target group in mental health care that might experience difficulties with the use of eHealth websites. Eraslan et al. (2017) found that autistic individuals process web pages differently compared to neurotypical individuals in ways that cause difficulties navigating through content and completing tasks. In another study, autistic individuals tended to look at more irrelevant items on a website, got more distracted and showed lower overall task performance in effectively navigating through content (Eraslan et al., 2019). Since autism spectrum disorder is partly characterized by sensory processing abnormalities, these differences in processing web pages can potentially be explained by the different ways in which autistic individuals process and experience sensory information, such as auditory or visual information (Dunn, 2001; Eraslan et al., 2017). Sensory processing abnormalities are far from exclusive to autism spectrum disorder however, since they are also considered to be present in other forms of severe mental illness such as schizophrenia (Brown et al., 2002). This indicates that incompatibilities between eHealth designs and populations with severe mental illness might potentially also be explained by individual differences in sensory processing.

Need for research

If the lower ability to effectively engage with a website in autistic individuals and severe mental illness can potentially be explained by differences in overall sensory processing, it might be that sensory processing also plays an important role in the difficulties that various other populations experience on eHealth websites, since more subtle differences in sensory processing are considered to vary from person to person in the general population (Dunn, 2001). Accounting for those differences is important because it can enable further understanding of how individuals differ in their perception and use of technologies, and further result in valuable information on how to increase the individual fit and usability of eHealth interventions based on sensory processing. However, despite the importance of increasing the accessibility of eHealth, there seems to be no existing research into the influence that an individual's sensory processing style might have on the usage and experience of eHealth interventions. All previously mentioned points imply the relevance of investigating whether sensory processing influences the experience and usability of as well as engagement with eHealth websites in a neurotypical population.

Eye-tracking

Various usability testing methods, such as self-report measures, can be used across different populations to increase the knowledge base and fill gaps in the research. However, eye-tracking could additionally be a suitable and valuable method of measurement, as it can give insight into whether individuals with distinctively different sensory processing show distinctively different patterns of eye-movement (Eraslan et al., 2019). The use of eye-tracking is based on the hypothesis that the fixations and movements of the eyes offer insight into the cognitive processes of a subject (DuBois et al., 2017). Eye-tracking could be especially valuable as an addition to self-report measures used to study of sensory processing differences, since it is less dependent on the subjective reports of participants (DuBois et al.,

2017). However, since this is a new method for conducting this type of research, more needs to be known about how to set up and execute eye-tracking research in the fields of sensory processing and eHealth.

This study

One way to prepare future eye-tracking research in this field is to assess the relationship between sensory processing and the subjective experience of eHealth websites, since depending on the presence and strength of the relationships between sensory processing sensitivity and eHealth website experience, the context and interpretation of those eye-tracking observations might differ. Setting up an evaluation study with a vulnerable target population, such as people with severe mental illness, requires a lot of resources and is especially laborious when using a new method such as eye-tracking. These circumstances indicate that there is a need for initial survey studies that explore the relationship between sensory processing and the experience of eHealth websites in non-clinical populations. Therefore, this study aimed to investigate the relationship between the construct of sensory processing sensitivity, as measured by the AASP, and expected usability of and expected engagement with eHealth websites of a neurotypical student population. The main goal was to gain insight into whether an individual's sensory-processing sensitivity as measured by the AASP, does indeed play a significant role in user's perception of the visual layout and usability of eHealth websites. The survey that was used was designed in a manner that can be replicated and be further tested with the addition of eye-tracking technology in order to add to the knowledge base about the role that sensory processing plays in eHealth.

In addition, a new four-item measure was developed that intended to assess how visually pleasant and sensory appealing the layout of the websites appear to the participants, called the "Visual Sensory Appeal Questionnaire" (VSAQ). A scale that specifically measures the visual appeal of a website as perceived by its users could help with the interpretation of

measurements of the usability, engagement and general website quality, as those are considered to be influenced by the visual appeal of a website (Lavie & Tractinsky, 2004; O'Brien & Toms, 2008). The VSAQ was intended to be an additional and more specific measurement of an individuals' experience and opinion of exclusively the visual layout of a website, since perceived visual aesthetics and visual appeal are considered to be crucial factors that are often underestimated in the research of human-technology interaction (Lavie & Tractinsky, 2004). It was hypothesized that the scores on this measure are significantly related to usability, engagement and overall website rating.

The following research questions were posed:

Q1: *To what extent is sensory processing related to the way Screenshots of eHealth platforms are perceived in terms of expected usability, expected engagement, sensory appeal and overall website rating?*

Q2.1: *To what extent is the "Visual Sensory Appeal Questionnaire" reliable in terms of internal consistency?*

Q2.2: *To what extent is the "Visual Sensory Appeal Questionnaire" valid in terms of convergent and discriminant validity?*

Methods

Participants

Participants for the study were acquired using a non-representative convenience and opportunity sampling method aimed at university students, via the SONA system platform of the University of Twente. Using SONA, students of the University of Twente can sign up for participation in studies in exchange for research credit points (0.25 credit points in this case). Participants who indicated that they are not studying at a university or who indicated to be diagnosed with a neurodevelopmental or neurological disorder such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), or Attention Deficit Disorder (ADD) were excluded from the data analysis.

Materials and Procedure

A correlational cross-sectional design was employed. Screenshots of two differently designed eHealth websites, Minddistrict.com and Therapieland.nl, were used as case examples. These websites provide mental health and health-related information and exercises based on thematically structured modules and were selected based on the different layouts for the sake of comparison. The use of screenshots instead of actual usage of the websites was due to environmental factors, mainly social-distancing regulations, that made actual website usage in a controlled environment difficult to realize. Participants were asked to complete several questionnaires concerning their perception of specific aspects of the websites and were further asked open questions about visual elements on the websites that caught their attention. This study will focus on the quantitative part of the data. Using the software “Qualtrics”, a survey was created that consisted of several distinct sections with different elements and questionnaires. The questionnaires and elements that the survey contained are described in the following section.

Parts of the Survey. As the data collection was entirely performed online, all questionnaires mentioned below were provided to the participants in digital form. Participants could access the survey both using a computer and mobile devices, the survey was pilot tested before the start of the data collection and was found to take about 30 minutes to be completed. Table 1 provides a chronological overview of the elements of the survey and the complete survey including all questionnaires can be found in Appendix 1.

Table 1. *Overview of the elements and questionnaires of the survey*

Section	Content
1	Introduction and Socio-Demographics
2	Adult/Adolescent Sensory Profile (AASP)
3	Questions about eHealth platforms
4	System Usability Scale (SUS)
5	Twente Engagement with eHealth Technologies Scale (TWEETS)
6	Final Rating of the websites
7	Ending remarks

1. Introduction and Socio-Demographics. Prior to the start of the survey, the participants were provided a standardized written introduction to the study digitally. In this introductory text, it was explained that all generated data will be treated confidentially, and participants were asked to fill in the informed consent form. In case of a positive response to the informed consent form, the survey was started with a questionnaire about socio-demographics including the age, gender, nationality and optional questions about whether the participant has been diagnosed with any neurodevelopmental or neurological disorder such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), or Attention Deficit Disorder (ADD), and/or whether the participants currently take medication

that might alter their perception. Prior to this latter group of questions, a disclaimer informed participants about the fact that they are not obliged to answer questions regarding diagnoses and medication.

2. Adult & Adolescent Sensory Profile (AASP). The second section consisted of a digitalized version of the Adult/Adolescent Sensory Profile (AASP), which is intended to measure individual differences in the processing of sensory stimuli. The AASP is based on the four-quadrant model of sensory processing proposed by Dunn (1997). The model initially resulted from the statistical analysis of the Sensory Profile, a measure developed to assess children’s sensory processing behavior, and contains four quadrants: “low registration”, “sensitivity to stimuli”, “sensation avoiding” and “sensation seeking” (Brown et al., 2001; DuBois et al., 2017). Of those quadrants, “Low Registration” refers to a low sensitivity to stimuli with “Sensation Seeking” as the behavioral response of increasing stimulation due to understimulation, while “Sensitivity to Stimuli” is related to the behavioral response of “Sensation Avoiding”, meaning the reduction of stimulation due to overstimulation (Dunn, 1997). Based on this four-quadrant structure, the 60-item Adult & Adolescent Sensory Profile was developed as a measure of sensory processing styles, which is the most commonly used self-report measure in research on sensory processing (Lewis, 2018). The AASP contains 15 items per quadrant-subscale. Table 2 provides an overview of the four subscales and example items, as well as the Cronbach’s alpha in this study per subscale.

Table 2. *Overview of the four main AASP subscales with example questions and Cronbach’s alpha in this study*

Quadrant	Cronbach’s alpha	Example Question
Low registration	.783	“I don’t smell things that other people say they smell.”

Sensory Sensitivity	.755	“I don’t like strong tasting mints or candies (for example, hot/cinnamon or sour candy.”
Sensation Avoiding	.621	“I leave or move to another section when I smell a strong odor in a store (for example, bath products, candles, perfumes).”
Sensation Seeking	.670	“I add spice to my food.”

3. Questions about eHealth platforms. The third section consisted of several questions regarding the two different eHealth platforms Minddistrict and Therapieland. Beginning with a short introductory text that provided the participants with a fictive scenario of a practical application of the website, this section included two screenshots of the modules “Healthy eating habits” and “Learn to relax” from MindDistrict.com as well as two screenshots of the modules “Nutrition” and “Relaxation exercise” from TherapieLand.nl (Figure 1, Figure 2). The fictive scenarios were the same for both websites, asking participants to imagine that they are a person using the website in need of advice about either the topics healthy nutrition or relaxation exercises (Appendix A). Each screenshot was accompanied by two so-called “Heatmap-Questions”, with which it is possible to record which area of the screenshot is clicked by participants. The possible areas to click on were defined by the researchers, and participants were asked to a) select up to three elements that captured their attention in a positive way and b) select up to three elements that captured their attention in a negative way.

The participants were firstly presented with the screenshots and questions from the eHealth modules about “nutrition” from the website Minddistrict. The questions were provided in the following chronological order: First, the question on the general impression of the screenshot was asked. Second, the Heatmap question about *positive* aspects was asked.

Third, the Heatmap question about *negative* aspects was asked. The questions about the “nutrition” module on Therapieland were asked in the same chronological order. Linked to the Heatmap-Questions, open questions asked for the substantiation of the selected areas.

Using open questions (for example: “*What is your first impression of the Screenshot?*”), the participants were asked about their impressions and perceptions of the different displayed screenshots.

Information on nutrition and healthy eating habits

Healthy eating habits

Eat healthy

Healthy, nutritious eating habits form an important part of our life. We often think about what tastes nice, where we are going to eat and with whom. But nutrition is also a large determining factor of how we feel and how healthy we are. In this part of the self-help module you will be given information and tips about healthy food. You are going to set a goal for yourself and work towards this step by step.

3x less, 3x more

Healthier eating actually boils down to the following: less sugar, less saturated fats and less salt. And on the other side: more fruit, more wholeheart products and more vegetables.

Eat less of this

Unhealthy

Sugar

Fat

Salt

Eat more of this

Healthy

Fruit

Wholeheart

Vegetables

Less sugar

We need sugar. It gives you easy energy which is useful for your body. But these days it is very easy to exceed your daily requirement. Free sugars, in particular, are unhealthy. This is sugar that is added to products as biscuits and sweets, but also to pasta sauces. Types of sugar that do not fall in this category are those which are a natural part of a product, such as in milk, fruit and vegetables. Try and reduce free sugar. Below a few tips on how to go about this:

- Cool drinks contain rather a large amount of free sugar. Try switching to water, tea or coffee.
- Replace your sweet evening snack with something healthy such as an apple or a bowl of yoghurt with fruit and nuts.
- Look at the labels in the supermarket and choose the product with the least amount of sugar.
- “Sugar-free” sweets can be used as substitute occasionally, but please note: not all sugar-free products are good for you.

Sugar

- Choose Greek yoghurt: it contains less sugar than normal yoghurt, has more good fats and leaves you feeling full.
- Eat products with good fats to make you feel full such as avocados, fish, nuts.
- Rather eat quinoa, buckwheat, almond flour, nuts and seeds instead of white wheat flour, rice or potatoes. They contain less sugar.

Alcoholic beverages also contain lots of sugar. Rather go for an alternative such as sparkling mineral water, fresh lemonade or a fruit and vegetable smoothie.

Learn to relax

Most people think of relaxation in terms of activities such as watching TV or reading a good book. However, the kind of relaxation that can really make a difference in reducing tension, anxiety and stress is called ‘deep relaxation’. In this session, you’ll practice with different techniques to help you learn to deeply relax.

Become aware of tension

We are often not aware of the tension in our bodies. This might not seem like a problem, but even when you’re unaware, the tension still affects you. Becoming aware of signs of stress and tension is the first step towards learning to relax. One way to gain more awareness of your body and tension is by practicing a mindfulness technique: the body scan.

In the video clip, therapist Katie explains how to practise with the body scan technique.

We are often not aware of the tension in our bodies. This might not seem like a problem, but even when you’re unaware, the tension still affects you. Becoming aware of signs of stress and tension is the first step towards

The body scan

Try this short body scan to gently explore tension and other sensations in your body. Keep the following in mind:

- Find a spot where you won’t be disturbed for at least five minutes.
- Lie down on your back in a comfortable position.
- It doesn’t matter what happens while you practise. Just keep on doing the exercise. Try to stay awake and concentrate.
- You don’t have to relax.
- Be open to your experience by not judging it as good or bad. If you notice yourself becoming judgemental, congratulate yourself for observing it and try to focus your attention back on the exercise.
- When you become distracted, gently return your attention to the recording.
- Remember that you don’t have to achieve anything with this exercise.

How did it go?

What did you notice?

What went well?

What was difficult?

Figure 1. Screenshot 1 (MD1) and Screenshot 2 (MD2) of the two modules on the website “MindDistrict”.

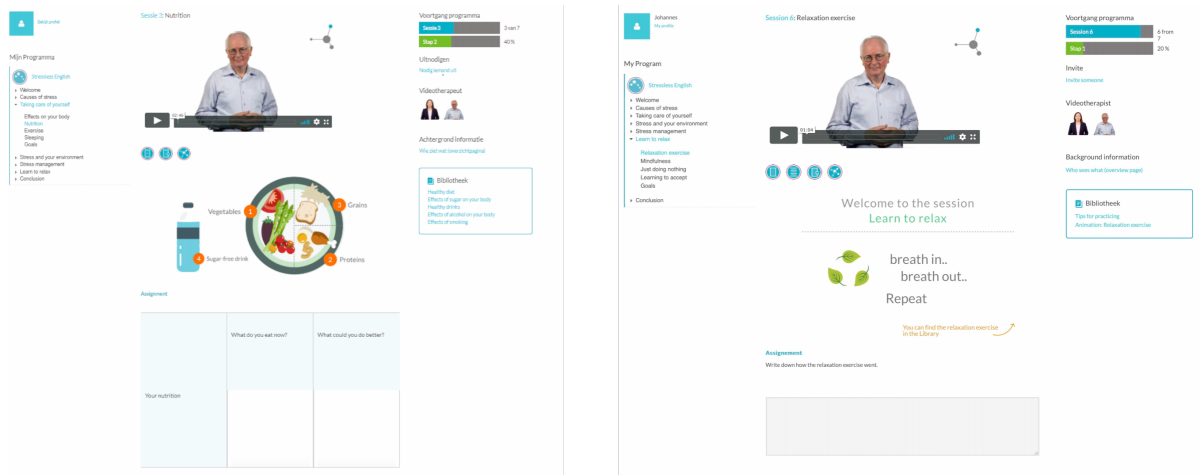


Figure 2. Screenshot 1 (TL1) and Screenshot 2 (TL2) of the two modules on the website “Therapieland”.

4. Visual Sensory Appeal Questionnaire (VSAQ). In addition, participants were provided with the “Visual Sensory Appeal Questionnaire” created specifically for this study in order to assess how visually pleasant and appealing the participants perceive the websites to be. In this four-item questionnaire, the participants were asked to implicate the degree to which they associate an adjective with the screenshots on a four-point scale. The terms used were selected by the researchers based on items from the visual subscale of the AASP and were provided in the forms of contrast pairs on a five-point scale, considered to be either pleasant or unpleasant by the researchers, which can be found in Table 3. The participants were asked to consider those contrast pairs in relation to the overall design and structure of the websites with the sentence “Please indicate the extent to which you find the following terms applicable to the screenshot of the eHealth platform (Minddistrict or Therapieland)”. This measure is intended to indicate the overall perceived sensory appeal and pleasantness of the websites to the respondents.

Table 3. *Semantic contrast Pairs used in the “Visual Sensory Appeal Questionnaire”*

Word 1	Word 2
Messy	Well-structured

Overwhelming	Endurable/Tolerable
Distracting	Calm
Not enjoyable	Very enjoyable

5. System Usability Scale (SUS). For the last three elements of the survey, a different fictive scenario was provided to the participants, asking them to imagine that they have used the eHealth website for one month.

Firstly, an adapted version of the System Usability Scale (SUS) was used once for each of the websites. The wording of the items was adapted to fit the concept of *expected usability*, as the participants did not use the websites but only looked at screenshots. The SUS contains ten items (for example: *I think that I would like to use Mindddistrict frequently*), is the most frequently used questionnaire for assessing perceived usability and has shown sufficient psychometric properties in various studies (Lewis, 2018). In this study, the Cronbach's alpha for the SUS was 0.853 for Mindddistrict and 0.880 for Therapieland.

6. Twente Engagement with eHealth Technologies Scale (TWEETS). Secondly, the nine-item "Twente Engagement with eHealth Technologies Scale" (TWEETS) was used once for each of the websites as a self-report measure on expected engagement with the websites (an example of the wording of one item: "*Mindddistrict can become part of my daily routine.*") (Kelders & Kip, 2019). It utilizes a Seven-Point Likert scale, is currently being validated and initial results show good reliability and validity (Kelders & Kip, 2019). In this study, the Cronbach's alpha was 0.928 for Mindddistrict and 0.925 for Therapieland.

7. Overall rating scale. For each of the two websites, a ten-point scale rating question, one being the lowest and ten being the highest rating, was used intended to be give an indication of the participants overall opinion of the websites (for example, "*Based on the previous questions, give a final rating of the eHealth platform Therapieland.*").

After completion of this last section of the survey, participants reached the ending screen that thanked them for their participation and informed about the possibility of asking further questions about the study via email.

Data Analysis

Dependent and independent variables. There were four independent variables resulting from the four quadrants of the four-quadrant model of sensory processing, namely *Low registration*, *Sensory Sensitivity*, *Sensation Seeking* and *Sensation Avoiding*. The dependent variables were the participants overall opinion of *Minddistrict* and *Therapieland*, indicated by the score on the ten-point rating scale from one to ten, as well as the expected usability and expected engagement for both websites, indicated by the scores of the System Usability Scale (SUS) and the Twente Engagement with eHealth Technologies Scale (TWEETS), resulting in six dependent variables.

Normality of the data. The data was transferred into the statistical software IBM SPSS for the statistical analysis. Frequencies and Descriptive statistics were calculated, and using Kolmogorov Smirnov tests, the data concerning the variables Sensory Processing, Usability, Engagement and Visual Sensory Appeal were tested for normal distribution. The tests showed that the data concerning Sensation Seeking, Sensory Sensitivity, Sensation Avoiding, the VSAQ for Minddistrict, the TWEETS for Minddistrict and the SUS for both Minddistrict and Therapieland was normally distributed, while the data of Low Registration, the VSAQ for Therapieland and the TWEETS for Therapieland was not normally distributed. Therefore, non-parametric correlation tests were used. The complete results of these tests can be found in Appendix C.

Procedure of Analysis. Firstly, in order to examine the relationship between the four dimensions of sensory processing as measured by the AASP, and the participants experience of the websites, as measured by the SUS, TWEETS, VSAQ and the overall website rating,

the data was analyzed using Spearman correlation statistics with regards to significance and strength of correlations. The strength of correlations was defined based on the division proposed by Cohen (1988), according to which correlations below .3 are weak, correlations between .3 and .5 are moderate and correlations above .5 are strong. The variables were the scores of Low Registration, Sensory Sensitivity, Sensation Seeking and Sensation Avoiding as well as Engagement, Usability, sensory appeal and overall website rating.

In order to assess the overall explained variance of sensory processing on the dependent variables, multiple linear regressions were performed with the four dimensions of sensory processing as independent variables for each of the dependent variables Engagement, Usability and overall website rating.

Concerning the reliability and validity of the VSAQ, inter-item correlations and Cronbach's alpha were calculated, and the correlations between the VSAQ scores and the variables Usability, Engagement and overall website rating were analyzed for the sake of assessing convergent and discriminant validity.

Results

Study Population

There were 54 participants in total, of which 8 had to be excluded from the analysis due to incomplete responses, resulting in 46 participants in the analysis. The majority of those participants were German (71.7%) and female (63%), with the ages ranging from 19 to 32 ($M=22.28$; $SD=2.48$).

Concerning Sensory Processing

The complete results concerning the correlation analysis can be found in Table 5, Table 6 and Table 7. In Table 5, the four dimensions of sensory processing are ordered vertically on the left side, while the scores of the measures SUS, TWEETS and overall website rating are ordered horizontally. In addition to the four main dimensions of sensory processing, the AASP subscale containing items related to visual processing has been included in the comparison with the name “AASP Visual” (Table 5).

Overall, Low Registration and Sensation Seeking showed the strongest negative correlations with the overall website rating, the expected Usability and expected Engagement of Minddistrict, and the correlations with the overall website rating were moderately negative and significant at the $p<.05$ level. This means that the higher a participants score on Low Registration and Sensation Seeking was, the lower the scores of expected usability, expected engagement and overall website rating of Minddistrict were. The correlations with Usability and Engagement were also negative but weak and not statistically significant. While Low registration showed weak correlations between $-.172$ and $.187$ with the VSAQ used for the four different screenshots, Sensation Seeking showed a moderate significantly negative correlation of $-.316$ with the VSAQ for Minddistrict and a weak positive correlation of $.196$ with the VSAQ for Therapieland. This means that the higher a participants score of Sensation

Seeking was, the lower the VSAQ score for Mindddistrict and the higher the VSAQ score for Therapieland was. .

Sensory Sensitivity showed a weak positive but non-significant correlation of .199 with the expected Engagement of Mindddistrict, and apart from that there were several weak negative and positive correlations (Table 5). The same was the case for Sensation Avoiding, which showed weak positive and negative correlations.

The visual subscale of the AASP showed weak positive correlations with expected Engagement for both websites and a significantly negative moderate correlation with the VSAQ for Mindddistrict (Table 5, Table 6). This means that the higher the score on the visual subscale was, the higher the score for expected Engagement on both websites, and the lower the VSAQ score for Screenshot 1 were (Table 5, Table 6).

The strongest correlation of $-.383$ was between Low registration and the overall rating of Mindddistrict (Table 5). In terms of effect size, all correlations can be considered to be in the range from weak to moderate strength.

In addition, multiple regressions were performed with the independent variable sensory processing and the dependent variables Engagement, Usability and overall website rating. The complete results of these multiple regressions can be found in Table 7. Sensory processing was shown to explain a significant amount of the variance in expected Engagement of Mindddistrict ($F(4, 41) = 2.694, p < .05, R^2 = .208, R^2 \text{ Adjusted} = .131$) and the overall website rating of Mindddistrict ($F(4, 41) = 3.435, p < .05, R^2 = .251, R^2 \text{ Adjusted} = .178$) (Table 7).

Table 5. Descriptive Statistics and Spearman Correlation for Sensory Processing, Usability, Engagement and overall rating for both pairs of screenshots from Minddistrict (MD) and Therapieland (TL) (N=46)

	M (SD)	Overall Rating MD	Overall Rating TL	SUS MD	SUS TL	TWEETS MD	TWEETS TL
M (SD)		5.456 (1.929)	6.696 (1.896)	56.837 (17.845)	70.054 (19.145)	34.217 (10.883)	30.267 (7.359)
Low Registration	26.826 (6.971)	-.383**	.090	-.222	-.106	-.119	.108
Sensory Sensitivity	33.022 (7.626)	.005	-.025	.056	-.023	.199	.083
Sensation Seeking	41.109 (5.786)	-.360*	.217	-.209	.018	-.254	.094
Sensation Avoiding	30.261 (6.238)	.082	.089	-.016	-.020	.010	.027
AASP Visual	25.609 (4.649)	-.014	-.045	-.036	-.044	.217	.201

Note. M=mean, SD= standard deviation, * $p < .05$, ** $p < .01$

Table 6. *Descriptive Statistics and Spearman Correlation for Sensory Processing and Sensory Appeal ordered per Screenshot (N=46)*

	M (SD)	VSAQ MD1	VSAQ MD2	VSAQ TL1	VSAQ TL2
M (SD)		11.244 (3.372)	12.826 (3.779)	14.565 (3.857)	15 (3.633)
Low Registration	26.826 (6.971)	-.172	-.152	-.004	.187
Sensory Sensitivity	33.022 (7.626)	-.242	.124	.063	.083
Sensation Seeking	41.109 (5.786)	-.316*	.008	.136	.196
Sensation Avoiding	30.261 (6.238)	-.218	-.110	-.052	-.031
AASP Visual	25.609 (4.649)	-.379*	.078	.093	.058

Note. M=mean, SD= standard deviation, * $p < .05$, ** $p < .01$

Regression Analysis

Table 7. *Results of Multiple Regressions with Sensory Processing, Sensory Sensitivity, Sensation Seeking and Sensation Avoiding*

Dependent Variable	R	R Square	Adjusted R Square	p
SUS Minddistrict	.359	.129	.044	.215
SUS Therapieland	.155	.024	-.071	.906
TWEETS Minddistrict	.456	.208	.131	.044*
TWEETS Therapieland	.247	.061	-.033	.629
Overall Rating	.501	.251	.178	.016*
Minddistrict				
Overall Rating	.294	.087	-.002	.433
Therapieland				

Note. * $p < .05$

Reliability & Validity of the VSAQ

Reliability. Table 8 contains the Cronbach's alpha statistic for the VSAQ, for all four screenshots on which it has been used in the study. All values range from .774 to .871, indicating acceptable to good internal consistency of the VSAQ. The Cronbach's alpha of .774 for all VSAQ items across the screenshots indicates acceptable overall internal consistency.

Table 8. *Cronbach's alpha for the "Visual Sensory Appeal Questionnaire" ordered by Screenshot*

	MD1	MD2	TL1	TL2	All Items
Cronbach's alpha	.775	.871	.859	.856	.774

Table 9 contains a summary of the inter-item correlations of all VSAQ items used in the survey, since the four-item questionnaire was used four times for the different screenshots. In Table 9, the lowest and highest inter-item correlation across the four instances that the VSAQ was used are shown in order to show the total range of correlations. The complete inter-item correlations for all individual 16 VSAQ items, resulting from the four items being used in four different parts of the survey, can be found in Appendix 2. Since the inter-item correlations for all the items used for Minddistrict and the items used for Therapieland were consistently above .3, it was shown that the items are related. Inter-item correlations below .3 would have indicated that the items of the questionnaire did not have sufficient coherence. However, there were some correlations above .7, which could mean that the prevailing items are potentially redundant or too similar in content.

Table 9. *Summed up ranges of inter-item correlations of all items across websites.*

	Item 1	Item 2	Item 3	Item 4
Item 1	1			
Item 2	.383* - .730*	1		
Item 3	.323* - .660*	.517* - .688*	1	
Item 4	.520* - .777*	.567* - .695*	.390* - .575*	1

Note. * $p < .05$

Validity. Table 10 shows the correlations between the VSAQ scores and the relevant scores for the dependent variables Engagement, Usability and overall website rating. Overall, there was a clear pattern visible in the data, which has been highlighted in Table 10 by showing the relevant correlations in bold letters. The pattern was that the VSAQ scores for Minddistrict consistently showed significantly positive correlations with the scores for Usability, Engagement and overall website rating of Minddistrict, while being weakly and even negatively correlated to the Usability, Engagement and overall website rating of Therapieland. For the VSAQ scores for Therapieland, the opposite was the case. While the correlations concerning Minddistrict were consistently moderate in effect size, ranging from .328 to .501, the correlations concerning Therapieland were consistently strong, ranging from .631 to .710.

Table 10. *Descriptive statistics and Spearman Correlations for Sensory Appeal, Usability, Engagement and overall rating for Minddistrict (MD) and Therapieland (TL) (N=46)*

	M (SD)	SUS MD	SUS TL	TWEETS MD	TWEETS TL	Overall Rating MD	Overall Rating TL
M (SD)		56.837 (17.845)	70.054 (19.145)	34.217 (10.883)	30.267 (7.359)	5.456 (1.929)	6.696 (1.896)
VSAQ MD1	11.244 (3.372)	.354*	-.045	.328*	-.116	.418**	-.041
VSAQ MD2	12.826 (3.779)	.501**	.020	.454**	.055	.381**	-.122
VSAQ TL1	14.565 (3.857)	-.099	.631**	-.099	.681**	-.226	.631**
VSAQ TL2	15 (3.633)	-.264	.686**	-.194	.696**	-.324	.710**

Note. M=mean, SD=standard deviation, * $p < .05$, ** $p < .01$

Discussion

Summary of Results

First Research Question. The first research question dealt with the relationship between sensory processing and the perception of screenshots of Mindddistrict and Therapieland in terms of expected usability, expected engagement, overall website rating and sensory appeal. Firstly, the results concerning the first research question showed that the scores of Low Registration and Sensation Seeking were consistently moderately negatively correlated with the Usability, Engagement and overall rating of Mindddistrict. This means that individuals with a higher degree of Low Registration and Sensation Seeking generally had a more negative experience of Mindddistrict in terms of expected Usability, expected Engagement and overall rating. Sensation Seeking is the behavioral dimension related to Low Registration in Dunn's four-quadrant model and describes the tendency of people in need of high sensory stimulation to increase the degree of stimulation in order to achieve their ideal level of stimulation (Dunn, 1997, 2001). Since a higher score on Low Registration and Sensation Seeking co-occurred with a more negative experience of Mindddistrict, a possible explanation could be that individuals scoring high on these two quadrants were not sufficiently stimulated by the layout of Mindddistrict and therefore did not consider the websites expected Usability, their expected Engagement with it and the overall quality of the website to be high.

Secondly, another finding worth pointing out was that the AASP items related to the processing of visual stimuli were weakly positively correlated with Engagement of both Mindddistrict and Therapieland. Even though the correlations were not statistically significant, they were pronounced in comparison to the other negative correlations with the AASP visual items. The finding of the participants expected engagement being correlated with a sensitivity for visual sensory stimulation is line with research that considers Engagement to be, amongst

other things, influenced by and linked to visual aesthetics and the visual aspects of sensory stimulation of a website (Lavie & Tractinsky, 2004; O'Brien & Toms, 2008).

Thirdly, another finding was that the multiple regressions that were conducted in order to assess the overall explained variance of the dependent variables by sensory processing showed significant levels of explained variance for engagement and the overall website rating, but only concerning Minddistrict, and not Therapieland. Since the individual correlations between the four quadrants and usability, engagement and overall website rating described above were also more pronounced and larger in effect size in the case of Minddistrict, it is indicated that there are some aspects of the layout of Minddistrict that cause it to be influenced by sensory processing to a higher degree than Therapieland. It is plausible in face of this finding that there are some factors in the layout and structure of eHealth websites that mediate the degree to which their user experience is influenced by sensory processing. Identifying the specific visual elements and differences in the visual layouts of the websites that are experienced differently by the users is beyond the possibilities of the design of this study, but additional methods such as eye-tracking could be helpful in examining the exact ways in which the users processed the two layouts differently, for example by examining gazing behaviors and patterns (Eraslan et al., 2017, 2019).

Second Research Question. The second research question concerned the reliability and validity of the “Visual Sensory Processing Questionnaire”, a four-item questionnaire based on the visual items of the AASP which was intended to measure the degree to which a website is visually appealing to users, since the perceived visual appeal of websites is considered to influence user engagement and usability (Lavie & Tractinsky, 2004; O'Brien & Toms, 2008). As mentioned in the results section, the ranges of Cronbach's alpha together with the ranges of inter-item correlations that were consistently above .3 indicated a high reliability of the VSAQ in terms of internal consistency, parallel forms reliability and

interrater reliability. The results supported the convergent validity of the VSAQ, as the significant correlations with Usability, Engagement and overall website rating were in line with the theoretical construct of sensory appeal. The results also supported the discriminant validity of the VSAQ, since there were no significant correlations between the VSAQ for one website and the Usability, Engagement or overall website rating of the other website, indicating that the correlations were not coincidental, but content-specific and distinct. In other words, the results indicated that the VSAQ was sensitive for the specific website that it was used on, since there were no significant random correlations with the opposite website or variables that were not expected to be correlated, indicating discriminate validity of the VSAQ. These correlations showed to turn out just as it was hypothesized. Interestingly, the correlations between the AASP and usability, engagement and overall rating were consistently strong for Therapieland, while the correlations for Minddistrict were consistently moderate, and Therapieland also showed higher VSAQ scores in total compared to Minddistrict, which can be interpreted as an indication that participants preferred the visual appearance of Therapieland. Similar to the finding that sensory processing explained variance in the user experience of Minddistrict but not of Therapieland, this difference in the indicates that there might be some aspect of the layout of Therapieland mediating the relationship between the VSAQ and Usability, Engagement and overall website rating. As mentioned above, eye-tracking, possibly combined with the thinking aloud method, could be a suitable method to investigate the visual aspects that cause the differences in detail. Overall, the VSAQ is a reliable measure that showed the potential to be used as a predictive tool of website preference and usability, since higher scores of visual appeal were significantly related to a higher overall website rating and expected usability in this study, which is in line with the important role that visual aesthetics are considered to have in website-interaction

(Lavie & Tractinsky, 2004). However, more research into the validity of the VSAQ and the general role of visual appeal in the perception of eHealth websites is needed.

Strengths and Limitations

This study had a unique and innovative focus on the relationship between sensory processing as measured by the AASP and website experience of a reportedly neurotypical student population, and even though the sample size of $n = 46$ was relatively small, several significant correlations between the four dimensions of sensory processing and the measures of Usability, Engagement and overall website rating have been found. However, there were also limitations to the study based on its design and environmental factors. One of the limitations is the use of screenshots instead of using an interactive version of the websites. Due to the use of screenshots, it was not possible to study actual usability and engagement based on actual website use, but only the expected usability and engagement as it was anticipated by the users based on the screenshots. Actual website use would have allowed for additional usability measurements such as task performance. Due to the contact restrictions connected to the global Covid-19 pandemic, conducting the study with actual website use in a controlled environment was not possible. Since the participants did not actually have to perform a task and navigate through the websites, their anticipated usability and imagined task performance might be higher than in the case of actual use. This could for example be explained by the so-called intention-behavior gap, which relates to the finding that the intention to perform a behavior is not reliably followed by that behavior (Sheeran & Webb, 2016). It is a possibility that participants exaggerated their estimate of usability and engagement of the websites due to the fact that they did not actually have to use them, but merely had the task of imagining a fictive context in which they would have used them. A specific example of the differences between actual website use and the use of screenshots in this study was the presentation of Minddistrict. In order to make the amount of visible content

and information comparable between Therapieland and Minddistrict, the length of the screenshots used for Minddistrict differs from the appearance of the website being used on a computer screen, as the areas captured on the screenshots would have involved scrolling. Overall, the results of this study can still be considered relevant with regards to the participants' opinions and perception of the screenshots and overall design of the websites, but do not allow inference on actual website use.

A second limitation is the exclusive use of a self-report measure of sensory processing only as the indication of sensory processing processes. While self-report measures are a common method in sensory processing research, researchers such as Cascio et al. (2016) point out that self-report measures of sensory processing often capture elements and aspects of perception and perceptive behavior that are not basic sensory processes, but rather but rather relate to, for example, attentional processes. This means that measures such as the AASP used in this study might not be valid measures of specifically sensory processing (Cascio et al., 2016; DuBois et al., 2017). In addition, self-report measures in general face the challenge of several biases, such as socially desirable responding, which describes the participants tendency to distort their self-describing responses in a way that they perceive to be in accordance to the social norm and socially acceptable (Perinelli & Gremigni, 2016).

Implications for Future Research & Practice

Since the results showed that sensory processing was stronger correlated with Minddistrict than it was with Therapieland, further research is necessary to investigate the factors that potentially mediate the relationship between sensory processing and usability, engagement and overall website rating. There are several ways in which this can be done based on this study. Firstly, a similar study design can be repeated with the change of using actual website use instead of the usage of screenshots in order to validate the results of this study for the case of actual use. Secondly, the qualitative data generated through open

questions in the survey of this study can be analyzed to gain insight into the specific substantiations of participants website experience. Thirdly, a similar study design can be augmented with the incorporation of eye-tracking as an additional, more objective method of assessing the sensory processes and scanning behaviors of participants in order to triangulate the results, as it is also recommended by DuBois et al. (2017).

Since the “Visual Sensory Appeal Questionnaire” showed good statistical properties concerning reliability and validity, it is recommended for use in further research. It is however important to examine the VSAQ concerning its content validity in order to make sure that it is measuring a distinct theoretical concept of visual appeal. It is a promising measure that has the potential to be used as a predictive tool of website preference and usability, since higher scores of visual appeal were significantly related to a higher overall website rating and expected usability in this study, which is in line with the important role that visual aesthetics are considered to have in website-interaction (Lavie & Tractinsky, 2004).

This study examined sensory processing of a neurotypical student population, since most research on differences in sensory processing is focused on the autism spectrum disorder. More research should be done in order to gain insight into whether there are significant differences in the importance that sensory processing has for website experience of different populations, as this could help to make eHealth more user-friendly and more accessible across diverse populations.

Conclusion

Since eHealth is an increasingly used and promising way of supporting individuals with mental health issues in an individualized, remote manner, it is important to do research on the factors that influence the usability and accessibility of eHealth interventions in mental health. Since sensory processing abnormalities are a factor considered to influence the website usage

and usability for populations with severe mental illness, it is relevant to investigate whether it is a factor that influences website perception in general and across populations. Therefore, this study had the overall aim of gaining insight into the relationship between sensory processing and engagement, usability and overall rating of eHealth websites of a neurotypical student population, with the underlying goal of adding to the knowledge base that can make eHealth more widely accessible and effective. Along with this main inquiry a four-item measure of visual sensory appeal was developed and initially tested. The results showed that sensory processing had a statistically significant relationship with the user experience of Minddistrict in terms of expected engagement and overall rating. Especially the quadrants Low Registration and Sensation Seeking were negatively correlated with usability, engagement and overall website rating for Minddistrict. The relationship between the results concerning Therapieland and sensory processing were less pronounced, while Therapieland was rated more positively in total with regards to overall rating and usability, raising questions about the explanatory factors in this difference across the two websites, that could be answered based on the recommendations for future research made in this study such as the use of eye-tracking. The initial testing of the “Visual Sensory Appeal Questionnaire” resulted in good results with regards to reliability and validity and is recommended for use in follow-up studies, ideally in combination with eye-tracking technology.

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Appendix

Appendix A: Complete Online Survey, transcribed via Qualtrics

Start of Block: Intro

Q1.1

In this study, we want to figure out how university students perceive the usability of different types of eHealth platforms, which are digital platforms that aim to improve the health and well-being of its users. We are curious about your first impressions and your likes and dislikes regarding screenshots of two different platforms. Specifically, we would like to gain insight on how different sensory processing styles contribute to the perceived usability and of eHealth platforms. The survey should take approximately 30 minutes. We would like to ask you to answer the questions in full honesty, and with full attention. If you have any questions regarding the questionnaire, feel free to send these to Niels Brouwer (n.brouwer@student.utwente.nl) or Hanneke Kip (h.kip@utwente.nl).

Thank you in advance for your time and effort.

Johannes Kerz, Lea Hohendorf, & Niels Brouwer.

End of Block: Intro

Start of Block: Informed consent

Q2.1

I understand that this study consists of questions regarding the processing of sensory information and my perception of eHealth websites. I agree with my own free will to participate in this research. I reserve the right to withdraw this consent without the need to

give any reason and I am aware that I may withdraw from the study at any time. If my research results are to be used in scientific publications or made public in any other manner, then they will be made completely anonymous. My personal data will not be disclosed to third parties without my expressed permission. If I request further information about the research, now or in the future, I may contact either Hanneke Kip (h.kip@utwente.nl), who is the thesis supervisor, or Niels Brouwer (n.brouwer@student.utwente.nl). I am aware that if I have any complaints about this research, I can direct them to the secretary of the Ethics Committee of the Faculty of Behavioural Sciences at the University of Twente, Drs. L. Kamphuis-Blikman P.O. Box 217, 7500 AE Enschede (NL), telephone: +31 (0)53 489 3399; email: l.j.m.blikman@utwente.nl).

Q2.2 I hereby declare that I have been informed in a manner which is clear to me about the nature and method of the research as described above, and am willing to proceed with the study.

☐ Yes (1)

☐ No (2)

Skip To: End of Survey If I hereby declare that I have been informed in a manner which is clear to me about the nature and... = No

Page _____

Break

Q3.1 How old are you?

Q3.2 What is your gender?

☐ Male (1)

☐ Female (2)

☐ Other (3)

Q3.3 What is your nationality?

☐ German (1)

☐ Dutch (2)

☐ Other, namely: (3) _____

Page _____

Break

Q3.4 I am:

▼ A university student at the University of Twente (1) ... Not a student (3)

Skip To: End of Survey If I am: = Not a student

Display This Question:

If I am: != Not a student

Q3.5 My study programme is:

Page _____

Break

Q3.6 Literature shows that there might be a connection between certain disorders and the way information on websites is processed. Therefore we want to know whether you are diagnosed with any disorders. The following questions are **not obligatory** - answer the questions only if you feel comfortable doing so. Otherwise, you can move on to the next section.

Q3.7

Were you diagnosed with (a) neurodevelopmental or neurological disorder(s) such as

Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), or
Attention Deficit Disorder (ADD)?

☐ Yes (1)

☐ No (2)

Q3.8

Are you currently diagnosed with (a) psychological disorder(s) such as depression or
anxiety?

☐ Yes (1)

☐ No (2)

Q3.9

Do you currently use medication that may have an effect on how you process sensations?

☐ Yes (1)

☐ No (2)

End of Block: Socio-demographics

Start of Block: AASP

Q4.1 Below you will find a questionnaire on how you process different sensations. Read the questions carefully and with full attention. Please select the option that best describes the frequency with which you perform the following behaviours.

End of Block: AASP

Start of Block: Nutrition MD

Q5.1

You are now going to evaluate screenshots of different eHealth platforms. These eHealth platforms are MindDistrict and TherapieLand.

Before starting with the next set of questions, we'd like you to read a scenario. Try to picture yourself experiencing this scenario in real life. Please keep the scenario in mind when answering the upcoming questions.

"You've read on social media that studies found that healthy eating increases your happiness, mood, and overall quality of life. This finding triggered your curiosity. You wonder if you would be able to make some changes to meals yourself, in order to make them more healthy and nutritious. As such, you have decided to look into websites that provide you with guidelines on how to develop a healthier eating pattern. This search has brought you to two eHealth websites; Therapieland and MindDistrict, which you believe may help you further."

Page

Break

Q5.2 Below you can find a screenshot of the module 'Healthy Eating' on the eHealth platform MindDistrict. Observe the screenshot carefully while keeping the scenario in mind.

Q5.3

What is your first impression of the screenshot?

Q5.4

Healthy eating habits

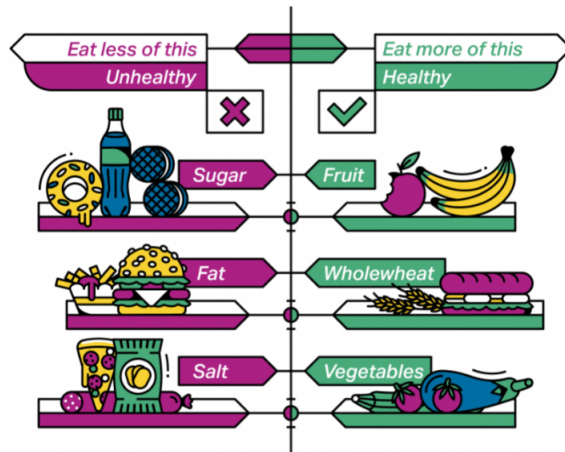
Eat healthy



Healthy, nutritious eating habits form an important part of our life. We often think about what tastes nice, where we are going to eat and with whom. But nutrition is also a large determining factor of how we feel and how healthy we are. In this part of the self-help module you will be given information and tips about healthy food. You are going to set a goal for yourself and work towards this step by step.

3x less, 3x more

Healthier eating actually boils down to the following: less sugar, less saturated fats and less salt. And on the other side: more fruit, more wholewheat products and more vegetables.



Less sugar

We need sugar. It gives you easy energy which is useful for your body. But these days it is very easy to exceed your daily requirement. Free sugars, in particular, are unhealthy. This is sugar that is added to products as biscuits and sweets, but also to pasta sauces. Types of sugar that do not fall in this category are those which are a natural part of a product, such as in milk, fruit and vegetables. Try and reduce free sugar. Below a few tips on how to go about this:

- Cool drinks contain rather a large amount of free sugar. Try switching to water, tea or coffee.
- Replace your sweet evening snack with something healthy such as an apple or a bowl of yoghurt with fruit and nuts.
- Look at the labels in the supermarket and choose the product with the least amount of sugar.
- 'Sugar-free' sweets can be used as substitute occasionally, but please note: not all sugar-free products are good for you.

Sugar



- Choose Greek yoghurt: it contains less sugar than normal yoghurt, has more good fats and leaves you feeling full.
- Eat products with good fats to make you feel full such as avocado, fish, nuts.
- Rather eat quinoa, buckwheat, almond flour, nuts and seeds instead of white wheat flour, rice or potatoes. They contain less sugar.

Alcoholic beverages also contain lots of sugar. Rather go for an alternative such as sparkling mineral water, fresh lemonade or a fruit and vegetable smoothie.

Page _____

Break

Q5.5

Please select the elements that **capture your attention in a positive way**. You can do so by

clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.

Healthy eating habits

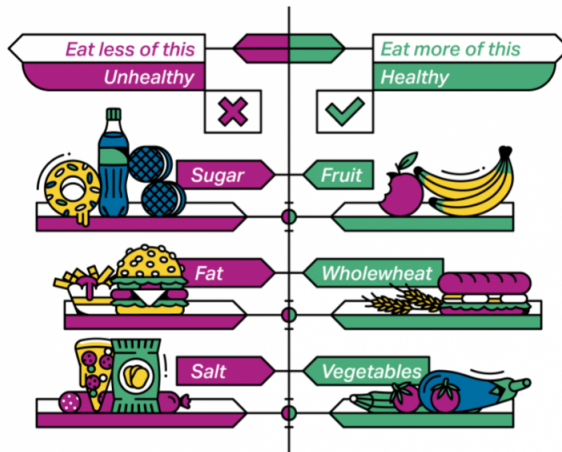
Eat healthy



Healthy, nutritious eating habits form an important part of our life. We often think about what tastes nice, where we are going to eat and with whom. But nutrition is also a large determining factor of how we feel and how healthy we are. In this part of the self-help module you will be given information and tips about healthy food. You are going to set a goal for yourself and work towards this step by step.

3x less, 3x more

Healthier eating actually boils down to the following: less sugar, less saturated fats and less salt. And on the other side: more fruit, more wholewheat products and more vegetables.



Less sugar

We need sugar. It gives you easy energy which is useful for your body. But these days it is very easy to exceed your daily requirement. Free sugars, in particular, are unhealthy. This is sugar that is added to products as biscuits and sweets, but also to pasta sauces. Types of sugar that do not fall in this category are those which are a natural part of a product, such as in milk, fruit and vegetables. Try and reduce free sugar. Below a few tips on how to go about this:

- Cool drinks contain rather a large amount of free sugar. Try switching to water, tea or coffee.
- Replace your sweet evening snack with something healthy such as an apple or a bowl of yoghurt with fruit and nuts.
- Look at the labels in the supermarket and choose the product with the least amount of sugar.
- 'Sugar-free' sweets can be used as substitute occasionally, but please note: not all sugar-free products are good for you.

Sugar



- Choose Greek yoghurt: it contains less sugar than normal yoghurt, has more good fats and leaves you feeling full.
- Eat products with good fats to make you feel full such as avocado, fish, nuts.
- Rather eat quinoa, buckwheat, almond flour, nuts and seeds instead of white wheat flour, rice or potatoes. They contain less sugar.

Alcoholic beverages also contain lots of sugar. Rather go for an alternative such as sparkling mineral water, fresh lemonade or a fruit and vegetable smoothie.

Q5.6 Please explain what areas you have selected, and why these areas are **eye-catching** and **enjoyable** to you.

☐ Area 1 (1) _____

☐ Area 2 (2) _____

☐ Area 3 (3) _____

Page _____

Break

Q5.7 Please select the elements that capture your attention in a negative way. You can do so by clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.

Healthy eating habits

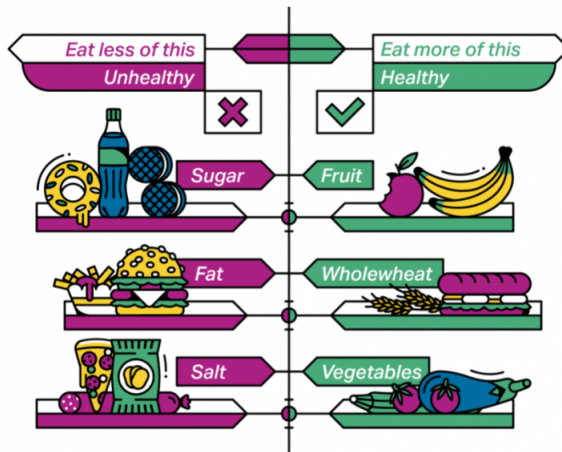
Eat healthy



Healthy, nutritious eating habits form an important part of our life. We often think about what tastes nice, where we are going to eat and with whom. But nutrition is also a large determining factor of how we feel and how healthy we are. In this part of the self-help module you will be given information and tips about healthy food. You are going to set a goal for yourself and work towards this step by step.

3x less, 3x more

Healthier eating actually boils down to the following: less sugar, less saturated fats and less salt. And on the other side: more fruit, more wholewheat products and more vegetables.



Less sugar

We need sugar. It gives you easy energy which is useful for your body. But these days it is very easy to exceed your daily requirement. Free sugars, in particular, are unhealthy. This is sugar that is added to products as biscuits and sweets, but also to pasta sauces. Types of sugar that do not fall in this category are those which are a natural part of a product, such as in milk, fruit and vegetables. Try and reduce free sugar. Below a few tips on how to go about this:

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Sugar



- Choose Greek yoghurt: it contains less sugar than normal yoghurt, has more good fats and leaves you feeling full.
- Eat products with good fats to make you feel full such as avocado, fish, nuts.
- Rather eat quinoa, buckwheat, almond flour, nuts and seeds instead of white wheat flour, rice or potatoes. They contain less sugar.

Alcoholic beverages also contain lots of sugar. Rather go for an alternative such as sparkling mineral water, fresh lemonade or a fruit and vegetable smoothie.

Q5.8 Please explain what areas you have selected, and why these areas are eye-catching and **less enjoyable** to you.

☐ Area 1 (1) _____

☐ Area 2 (2) _____

☐ Area 3 (3) _____

Page _____

Break

Q5.9 Please indicate the extent to which you find the following terms applicable to the screenshot of the eHealth platform MindDistrict:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	
Messy	☐	☐	☐	☐	☐	Well-Structured
Overwhelming	☐	☐	☐	☐	☐	Endurable/Tolerable
Distracting	☐	☐	☐	☐	☐	Calm
Not enjoyable	☐	☐	☐	☐	☐	Very enjoyable

End of Block: Nutrition MD

Q6.1 Now you will engage with the module 'Nutrition' on the eHealth platform

TherapieLand. Note that TherapieLand is a different platform. Keep the scenario you have read previously in mind. If you have forgotten about the scenario, you can find it below this text. Feel free to move over to the next questions when you are certain that you have memorized the scenario.

"You've read on social media how studies found that healthy eating increases your happiness, mood, and overall quality of life. This finding triggered your curiosity. You wonder if you would be able to make some changes to meals yourself, in order to make them more healthy and nutritious. As such, you have decided to look into websites that provide you with guidelines on how to develop a healthier eating pattern. This search has brought you to two eHealth websites; Therapieland and MindDistrict, which you believe may help you further."

Page

Break

Q6.2 Below you can find a screenshot of the module 'Nutrition' on the eHealth platform

TherapieLand. Observe the screenshot carefully while keeping the scenario in mind.

Q6.3 What is your first impression of the screenshot?

Q6.4

Belijk profiel

Mijn Programma

Stressless English

» Welcome

» Causes of stress

» Taking care of yourself

» Effects on your body

» Nutrition

» Exercise

» Sleeping

» Goals

» Stress and your environment

» Stress management

» Learn to relax

» Conclusion

Sessie 3: Nutrition

02:46

Vegetables

1

2

3

4

Sugar-free drink

Grains

Proteins

Assignment

	What do you eat now?	What could you do better?
Your nutrition		

Voortgang programma

Sessie 3

3 van 7

Stap 2

40%

Uitnodigen

Nodig iemand uit

Videotherapeut

Achtergrond informatie

Wie ziet wat (overzichtspagina)

Bibliotheek

Healthy diet

Effects of sugar on your body

Healthy drinks

Effects of alcohol on your body

Effects of smoking

Page

Break

Q6.5 Please select the elements that capture your attention in a positive way. You can do so by clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.

[Bekijk profiel](#)

Sessie 3: Nutrition

Voortgang programma

Sessie 3	3 van 7
Stap 2	40 %

Uitnodigen

[Nodig iemand uit](#)

Videotherapeut

Achtergrond informatie

[Wie ziet wat \(overzichtspagina\)](#)

Bibliotheek

- [Healthy diet](#)
- [Effects of sugar on your body](#)
- [Healthy drinks](#)
- [Effects of alcohol on your body](#)
- [Effects of smoking](#)

Mijn Programma

Stressless English

- » Welcome
- » Causes of stress
- » **Taking care of yourself**

Effects on your body

- Nutrition
- Exercise
- Sleeping
- Goals

» Stress and your environment

- » Stress management
- » Learn to relax
- » Conclusion

02:46

Assignment

	What do you eat now?	What could you do better?
Your nutrition		

Q6.6 Please explain what areas you have selected, and why these areas are **eye-catching** and **enjoyable** to you.

☐ Area 1 (1) _____

☐ Area 2 (2) _____

☐ Area 3 (3) _____

Page _____

Break

Q6.7 Please select the elements that capture your attention in a negative way. You can do so by clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.

Bekijk profiel

Stressless English

» Welcome

» Causes of stress

» **Taking care of yourself**

Effects on your body

Nutrition

Exercise

Sleeping

Goals

» Stress and your environment

» Stress management

» Learn to relax

» Conclusion

Mijn Programma

Sessie 3: Nutrition

02:46

Vegetables

1

Grains

3

Proteins

2

Sugar-free drink

4

Voortgang programma

Sessie 3

3 van 7

Stap 2

40 %

Uitnodigen

Nodig iemand uit

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Achtergrond informatie

Wie ziet wat (overzichtspagina)

Bibliotheek

Healthy diet

Effects of sugar on your body

Healthy drinks

Effects of alcohol on your body

Effects of smoking

Assignment

	What do you eat now?	What could you do better?
Your nutrition		

Q6.8 Please explain what areas you have selected, and why these areas are eye-catching and **less enjoyable** to you.

- ☐ Area 1 (1) _____
- ☐ Area 2 (2) _____
- ☐ Area 3 (3) _____

Page _____

Break

Q6.9 Please indicate the extent to which you find the following terms applicable to the screenshot of the eHealth platform TherapieLand:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	
Messy	☐	☐	☐	☐	☐	Well-Structured
Overwhelming	☐	☐	☐	☐	☐	Endurable/Tolerable
Distracting	☐	☐	☐	☐	☐	Calm
Not enjoyable	☐	☐	☐	☐	☐	Very enjoyable

End of Block: Nutrition TL

Start of Block: Relaxation MD

Q7.1 Before starting with the next set of questions, we'd like you to read a new scenario. This scenario differs from the one mentioned before. Try to picture yourself experiencing this scenario in real life. Please keep the scenario in mind when answering the upcoming questions.

"You've read on social media that studies found that relaxation exercises reduce your stress and increase your happiness, mood, and overall quality of life. This finding triggered your curiosity. You wonder if you would be able to perform relaxation exercises in your daily life, in order to reduce stress and feel calm. As such, you have decided to look into websites that provide you with guidelines on how to reduce stress and increase relaxation. This search has brought you to two eHealth websites; Therapieland and MindDistrict, which you believe may help you further."

Page

Break

Q7.2 Below you can find a screenshot of the module 'Relaxation' on the eHealth platform MindDistrict. Observe the screenshot carefully while keeping the scenario in mind.

Q7.3 What is your first impression of the screenshot?

Q7.4

Learn to relax



Most people think of relaxation in terms of activities such as watching TV or reading a good book. However, the kind of relaxation that can really make a difference in reducing tension, anxiety and stress is called 'deep relaxation'. In this session, you'll practise with different techniques to help you learn to deeply relax.

Become aware of tension

We are often not aware of the tension in our bodies. This might not seem like a problem, but even when you're unaware, the tension still affects you. Becoming aware of signs of stress and tension is the first step towards learning to relax. One way to gain more awareness of your body and tension is by practising a mindfulness technique: the body scan.

 In the video clip, therapist Katie explains how to practise with the body scan technique.

We are often not aware of the tension in our bodies. This might not seem like a problem, but even when you're unaware, the tension still affects you. Becoming aware of signs of stress and tension is the first step towards



The body scan

Try this short body scan to gently explore tension and other sensations in your body. Keep the following in mind:

- Find a spot where you won't be disturbed for at least five minutes.
- Lie down on your back in a comfortable position.
- It doesn't matter what happens while you practise. Just keep on doing the exercise. Try to stay awake and concentrate.
- You don't have to relax.
- Be open to your experience by not judging it as good or bad. If you notice yourself becoming judgemental, congratulate yourself for observing it and try to focus your attention back on the exercise.
- When you become distracted, gently return your attention to the recording.
- Remember that you don't have to achieve anything with this exercise.



How did it go?

What did you notice?

What went well?

What was difficult?

Q7.5 Please select the elements that capture your attention in a positive way. You can do so by clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.

Learn to relax



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- When you become distracted, gently return your attention to the recording.
- Remember that you don't have to achieve anything with this exercise.



How did it go?

What did you notice?

What went well?

What was difficult?

Q7.6 Please explain what areas you have selected, and why these areas are **eye-catching** and **enjoyable** to you.

☐ Area 1 (1) _____

☐ Area 2 (2) _____

☐ Area 3 (3) _____

Page _____

Break

Q7.7 Please select the elements that capture your attention in a negative way. You can do so by clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.

Learn to relax



Most people think of relaxation in terms of activities such as watching TV or reading a good book. However, the kind of relaxation that can really make a difference in reducing tension, anxiety and stress is called 'deep relaxation'. In this session, you'll practise with different techniques to help you learn to deeply relax.

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- Remember that you don't have to achieve anything with this exercise.



How did it go?

What did you notice?

What went well?

What was difficult?

Q7.8 Please explain what areas you have selected, and why these areas are eye-catching and **less enjoyable** to you.

☐ Area 1 (1) _____

☐ Area 2 (2) _____

☐ Area 3 (3) _____

Page _____

Break

Q7.9 Please indicate the extent to which you find the following terms applicable to the screenshot of the eHealth platform MindDistrict:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	
Messy	☐	☐	☐	☐	☐	Well-Structured
Overwhelming	☐	☐	☐	☐	☐	Endurable/Tolerable
Distracting	☐	☐	☐	☐	☐	Calm
Not enjoyable	☐	☐	☐	☐	☐	Very enjoyable

End of Block: Relaxation MD

Q8.1 Now you will engage with the module 'Relaxation exercise' on the eHealth platform TherapieLand. Keep the scenario you have read previously in mind. If you have forgotten about the scenario, you can find it below this text. Feel free to move over to the next questions when you are certain that you have memorized the scenario.

"You've read on social media that studies found that relaxation exercises reduce your stress and increase your happiness, mood, and overall quality of life. This finding triggered your curiosity. You wonder if you would be able to perform relaxation exercises in your daily life, in order to reduce stress and feel calm. As such, you have decided to look into websites that provide you with guidelines on how to reduce stress and increase relaxation. This search has brought you to two eHealth websites; Therapieland and MindDistrict, which you believe may help you further."

Page

Break

Q8.2 Below you can find a screenshot of the module "Relaxation exercise" on the eHealth website TherapieLand.

Observe the screenshot carefully while keeping the scenario in mind.

Q8.3 What is your first impression of the screenshot?

Q8.4

therapieland

DASHBOARD PROGRAMS GROUPS LOGOUT

Stressless English

Feedback & contact

Johannes
My profile

Session 6: Relaxation exercise

Voortgang programma

Session	Progress
Session 6	6 from 7
Step 1	20 %

Invite
Invite someone

Videotherapist

Background information
[Who sees what \(overview page\)](#)

Bibliotheek
Tips for practicing
Animation: Relaxation exercise

My Program

- Stressless English
 - Welcome
 - Causes of stress
 - Taking care of yourself
 - Stress and your environment
 - Stress management
 - Learn to relax
 - Relaxation exercise
 - Mindfulness
 - Just doing nothing
 - Learning to accept
 - Goals
- Conclusion

Welcome to the session
Learn to relax

breath in..
breath out..
Repeat

You can find the relaxation exercise in the Library

Assignment
Write down how the relaxation exercise went.

Save Next step

Break

Q8.5 Please select the elements that capture your attention in a positive way. You can do so by clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.



DASHBOARDPROGRAMSGROUPSLOGOUT

Stressless English

Feedback & contact

**Johannes**
My profile

Session 6: Relaxation exercise

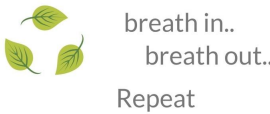


01:04



Welcome to the session

Learn to relax



You can find the relaxation exercise in the Library

Assignment

Write down how the relaxation exercise went.

SaveNext step >

My Program

Stressless English

» Welcome

» Causes of stress

» Taking care of yourself

» Stress and your environment

» Stress management

» Learn to relax

» Conclusion

Relaxation exercise

Mindfulness

Just doing nothing

Learning to accept

Goals

Voortgang programma

Session 6

6 from 7

Stap 1

20 %

Invite

Invite someone

Videotherapist



Background information

Who sees what (overview page)

Bibliotheek

Tips for practicing

Animation: Relaxation exercise

72

Q8.6 Please explain what areas you have selected, and why these areas are **eye-catching** and **enjoyable** to you.

☐ Area 1 (1) _____

☐ Area 2 (2) _____

☐ Area 3 (3) _____

Page _____

Break

Q8.7 Please select the elements that capture your attention in a negative way. You can do so by clicking on an element. You can select up to 3 elements. If there is nothing specific that catches your attention, you do not have to select anything.



DASHBOARDPROGRAMSGROUPSLOGOUT

Stressless English

Feedback & contact

Johannes
My profile

Session 6: Relaxation exercise



My Program

Stressless English

- » Welcome
- » Causes of stress
- » Taking care of yourself
- » Stress and your environment
- » Stress management
- » Learn to relax
 - Relaxation exercise
 - Mindfulness
 - Just doing nothing
 - Learning to accept
 - Goals
- » Conclusion

Voortgang programma

Session 6	6 from 7
Stap 1	20%

Invite

[Invite someone](#)

Videotherapist



Background information

[Who sees what \(overview page\)](#)

Bibliotheek

- Tips for practicing
- Animation: Relaxation exercise

Welcome to the session

Learn to relax



breath in..
breath out..
Repeat

You can find the relaxation exercise in the Library

Assignment

Write down how the relaxation exercise went.

Save

Next step >

Q8.8 Please explain what areas you have selected, and why these areas are eye-catching and **less enjoyable** to you.

☐ Area 1 (1) _____

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Page _____

Break

Q8.9 Please indicate the extent to which you find the following terms applicable to the screenshot of the eHealth platform TherapieLand:

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	
Messy	☐	☐	☐	☐	☐	Well-Structured
Overwhelming	☐	☐	☐	☐	☐	Endurable/Tolerable
Distracting	☐	☐	☐	☐	☐	Calm
Not enjoyable	☐	☐	☐	☐	☐	Very enjoyable

End of Block: Relaxation TL

Start of Block: SUS/TWEETS MD

Q9.1 You have now observed screenshots of both the eHealth platforms MindDistrict and TherapieLand. In the next few questions, you will be given these screenshots to observe again. Herein, questions are asked on how you expect the usability of, and your engagement with both eHealth platforms.

Please note that some questions might be hard to answer since you don't have the full experience of the website. In that case, try to pick the option that is closest to your first impressions and ideas about the website.

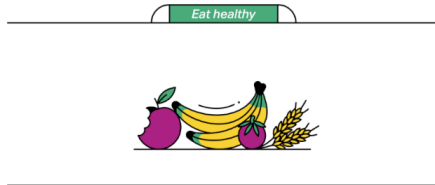
Before moving on, we would like you to read the following scenario. Try to keep this scenario in mind throughout all questions:

'You have had the opportunity to make use of the eHealth platform in question for a month. You have used it in a way that suits your needs, and that you feel comfortable with. As such, you determined how often per day/week you use the eHealth platform by yourself.'

Q9.2 Please take a last look at the screenshots of MindDistrict. Try to keep the scenario in mind while observing them. Feel free to move onto the next set of questions when you are ready.

Information on nutrition and healthy eating habits

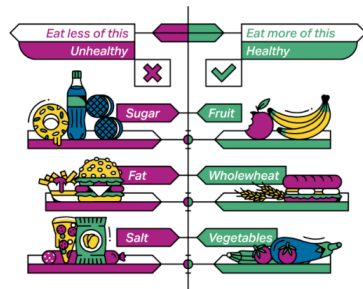
Healthy eating habits



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3x less, 3x more

Healthier eating actually boils down to the following: less sugar, less saturated fats and less salt. And on the other side: more fruit, more wholewheat products and more vegetables.



Less sugar

We need sugar. It gives you easy energy which is useful for your body. But these days it is very easy to exceed your daily requirement. Free sugars, in particular, are unhealthy. This is sugar that is added to products as biscuits and sweets, but also to pasta sauces. Types of sugar that do not fall in this category are those which are a natural part of a product, such as in milk, fruit and vegetables. Try to reduce free sugar. Below a few tips on how to go about this:

- Cool drinks contain rather a large amount of free sugar. Try switching to water, tea or coffee.
- Replace your sweet evening snack with something healthy such as an apple or a bowl of yoghurt with fruit and nuts.
- Look at the labels in the supermarket and choose the product with the least amount of sugar.
- 'Sugar free' sweets can be used as substitute occasionally, but please note: not all sugar-free products are good for you.



- Choose Greek yoghurt: it contains less sugar than normal yoghurt, has more good fats and leaves you feeling full.
- Eat products with good fats to make you feel full such as avocado, fish, nuts.
- Rather eat quinoa, buckwheat, almond flour, nuts and seeds instead of white wheat flour, rice or potatoes. They contain less sugar.

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Learn to relax



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The body scan

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- It doesn't matter what happens while you practise. Just keep on doing the exercise. Try to stay awake and concentrate.
- You don't have to relax.
- Be open to your experience by not judging it as good or bad. If you notice yourself becoming judgemental, congratulate yourself for observing it and try to focus your attention back on the exercise.
- When you become distracted, gently return your attention to the recording.
- Remember that you don't have to achieve anything with this exercise.



How did it go?

What did you notice?

What went well?

What was difficult?

Q9.3 Now you will answer questions concerning your engagement with the eHealth platform MindDistrict. Try to answer the questions to the best of your abilities.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
MindDistrict can become part of my daily routine. (1)	☐	☐	☐	☐	☐	☐	☐
MindDistrict is easy to use. (2)	☐	☐	☐	☐	☐	☐	☐
I will be able to use MindDistrict as often as needed to be more relaxed. (3)	☐	☐	☐	☐	☐	☐	☐
MindDistrict will make it easier for me to work on being more relaxed. (4)	☐	☐	☐	☐	☐	☐	☐
MindDistrict will motivate me to be more relaxed. (5)	☐	☐	☐	☐	☐	☐	☐
MindDistrict will help me to get more insight into how to be more relaxed. (6)	☐	☐	☐	☐	☐	☐	☐
I will enjoy using MindDistrict. (7)	☐	☐	☐	☐	☐	☐	☐
I will enjoy seeing the progress I make in MindDistrict. (8)	☐	☐	☐	☐	☐	☐	☐

MindDistrict
will fit me as
a person. (9)



Q9.4 The following questions concern the usability of the eHealth platform MindDistrict. Try to answer the following questions to the best of your abilities.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I think that I would like to use MindDistrict frequently. (1)	☐	☐	☐	☐	☐
I think MindDistrict may be unnecessarily complex. (2)	☐	☐	☐	☐	☐
I think MindDistrict may be easy to use. (3)	☐	☐	☐	☐	☐
I think that I would need the support of a technical person to be able to use MindDistrict. (4)	☐	☐	☐	☐	☐
I believe the various functions in MindDistrict may be well integrated. (5)	☐	☐	☐	☐	☐
I think there may be too much inconsistency in MindDistrict. (6)	☐	☐	☐	☐	☐
I would imagine that most people would learn to use MindDistrict very quickly. (7)	☐	☐	☐	☐	☐

I believe that MindDistrict may be very cumbersome to use. (8)

☐ ☐ ☐ ☐ ☐

I believe I would feel confident using MindDistrict. (9)

☐ ☐ ☐ ☐ ☐

I might need to learn a lot of things before I could get going with MindDistrict. (10)

☐ ☐ ☐ ☐ ☐

Q9.5 Based on the previous questions, give a final rating of the eHealth platform

MindDistrict.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
(1)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

End of Block: SUS/TWEETS MD

Start of Block: SUS/TWEETS TL

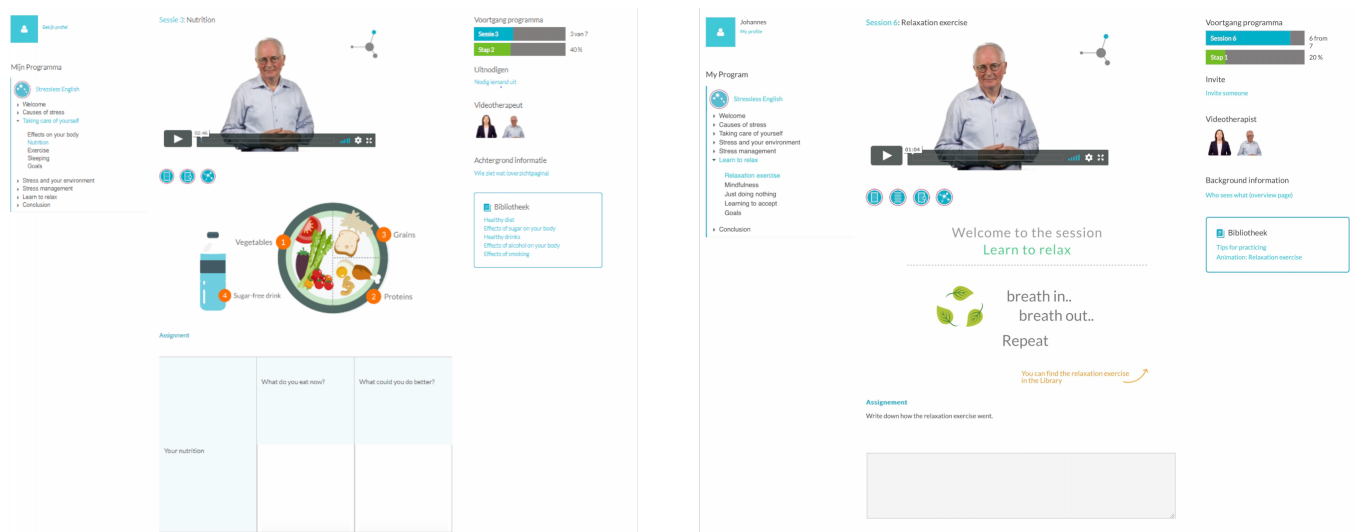
Q10.1 Now you will judge the usability of, and your engagement with the eHealth platform TherapieLand.

Again, please note that some questions might be hard to answer since you don't have the full experience of the website. In that case, try to pick the option that is closest to your first impressions and ideas about the website.

Try to keep the scenario in mind. If you still remember the scenario, feel free to move onto the next questions. If you feel like you have forgotten parts of the scenario, it can be found below.

'You have had the opportunity to make use of the eHealth platform in question for a month. You have used it in a way that suits your needs, and that you feel comfortable with. As such, you determined how often per day/week you use the eHealth platform by yourself.'

Q10.2 Please take a last look at the screenshots of TherapieLand. Try to keep the scenario in mind while observing them. Feel free to move onto the next set of questions when you are ready.



Q10.3 Now you will answer questions concerning your engagement with the eHealth platform TherapieLand. Try to answer the questions to the best of your abilities.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
TherapieLand can become part of my daily routine. (1)	☐	☐	☐	☐	☐
TherapieLand is easy to use. (2)	☐	☐	☐	☐	☐
I will be able to use TherapieLand as often as needed to be more relaxed. (3)	☐	☐	☐	☐	☐
TherapieLand will make it easier for me to work on being more relaxed. (4)	☐	☐	☐	☐	☐
TherapieLand will motivate me to be more relaxed. (5)	☐	☐	☐	☐	☐
TherapieLand will help me to get more insight into how to be more relaxed. (6)	☐	☐	☐	☐	☐
I will enjoy using TherapieLand. (7)	☐	☐	☐	☐	☐
I will enjoy seeing the progress I make in TherapieLand. (8)	☐	☐	☐	☐	☐
TherapieLand will fit me as a person. (9)	☐	☐	☐	☐	☐

Q10.4 The following questions concern the usability of the eHealth platform Therapieland. Imagine you have used the information as provided in the screenshot. Try to answer the following questions to the best of your abilities.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I think that I would like to use TherapieLand frequently. (1)	☐	☐	☐	☐	☐
I think TherapieLand may be unnecessarily complex. (2)	☐	☐	☐	☐	☐
I think TherapieLand may be easy to use. (3)	☐	☐	☐	☐	☐
I think that I would need the support of a technical person to be able to use TherapieLand. (4)	☐	☐	☐	☐	☐
I believe the various functions in TherapieLand may be well integrated. (5)	☐	☐	☐	☐	☐
I think there may be too much inconsistency in TherapieLand. (6)	☐	☐	☐	☐	☐
I would imagine that most people would learn to use TherapieLand very quickly. (7)	☐	☐	☐	☐	☐

I believe that TherapieLand may be very cumbersome to use. (8)

☐ ☐ ☐ ☐ ☐

I believe I would feel confident using TherapieLand. (9)

☐ ☐ ☐ ☐ ☐

I might need to learn a lot of things before I could get going with TherapieLand. (10)

☐ ☐ ☐ ☐ ☐

Q10.5 Based on the previous questions, give a final rating of the eHealth platform

TherapieLand.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)
(1)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

End of Block: SUS/TWEETS TL

Appendix B: Complete Inter-Item Correlations of all VSAQ items across platforms (MD & TL) and Screenshots (1 & 2)

	MD1.1	MD1.2	MD1.3	MD1.4	TL1.1	TL1.2	TL1.3	TL1.4	MD2.1	MD2.2	MD2.3	MD2.4	TL2.1	TL2.2	TL2.3	TL2.4
MD1.1	1.000															
MD1.2	.383	1.000														
MD1.3	.323	.517	1.000													
MD1.4	.520	.580	.470	1.000												
TL1.1	.293	.097	.123	.132	1.000											
TL1.2	.030	.006	.182	.151	.730	1.000										
TL1.3	.013	.117	.120	.187	.472	.585	1.000									
TL1.4	.253	.102	.007	.052	.777	.695	.390	1.000								
MD2.1	.244	.090	.204	.199	.092	.017	.226	.016	1.000							
MD2.2	.018	.082	.371	.065	.041	.001	.098	.051	.690	1.000						
MD2.3	.128	.204	.143	.247	.041	.040	.013	.070	.660	.688	1.000					
MD2.4	.152	.002	.112	.233	.047	.001	.095	.110	.552	.567	.575	1.000				
TL2.1	.102	.072	.085	.160	.545	.537	.472	.668	.222	.127	.176	.154	1.000			
TL2.2	.236	.153	.174	.203	.645	.712	.370	.622	.015	.033	.055	.038	.651	1.000		

TL2.3	.035	.090	.037	.057	.460	.592	.560	.573	.090	.097	.019	.019	.660	.621	1.000	
TL2.4	.347	.041	.080	.124	.570	.495	.237	.807	.034	.009	.032	.048	.616	.607	.462	1.000

Appendix C: Scores of the Kolmogorov Smirnov tests for the AASP, VSAQ, SUS and TWEETS.

Variable	Statistic	Significance
Low Registration	.178	.001*
Sensation Seeking	.107	.200
Sensory Sensitivity	.097	.200
Sensation Avoiding	.083	.200
VSAQ MD1	.109	.200
VSAQ TL1	.168	.003*
VSAQ MD2	.122	.100
VSAQ TL2	.182	.001*
TWEETS Minddistrict	.112	.200
TWEETS Therapieland	.170	.003*
SUS Minddistrict	.096	.200
SUS Therapieland	.095	.200

Note. * $p < .05$