Mindfulness Meditation as a Predictor of Planning and Procrastination

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Putting off a task or activity you are not looking forward to is something probably everybody can relate to. Whether it regards writing an e-mail, making a certain phone call, planning a date with a friend or even something as simple as taking out the trash: procrastination is very common (Kim & Seo, 2015). In their meta-analysis, Kim and Seo (2015) estimated that among college students as much as 80 – 95% procrastinate, and these numbers seem to be growing. Procrastination can have severe consequences, such as higher levels of stress, guilt, anxiety, depression and lower self-esteem (Flett, Blankstein & Martin, 1995; Senécal, Koestner & Vallerand, 1995; Lay, 1986). Procrastination, if not overcome, can deteriorate into chronic procrastination, which is defined as the repetitive postponement of either starting or finishing tasks such that the delay leads to subjective discomfort (Abassi & Alghamdi, 2015). This occurs among 20-25% of adults. Chronic procrastination can lead to chronic stress, anxiety, lack of discipline and persistence, inability to work methodically, and poor health (Burka & Yuen, 2008; Ferrari, 2001; Ferrari & Díaz-Morales, in press; Sirois, 2006). Therefore, research into possible ways to overcome procrastination, and prevent chronic procrastination, is important.

In the current research it will be investigated whether mindfulness meditation could be a possible treatment for procrastination. When mindful, one lets go of expectations and goals, and experiences and accepts cognitions as they come (Irving, Dobkin & Park, 2009). Mindfulness meditation improves working memory and decision-making (Alfonso, Caracuel, Delgado-Pastor & Verdejo-Garcia, 2011), therefore it might also affect planning and, consequently, procrastination. This study has three objectives: (a) to investigate the effect mindfulness meditation has on procrastination; (b) to determine the effect of mindfulness meditation on planning; and (c) to assess whether mindfulness meditation leads to lower procrastination through its effect on planning.

Procrastination is defined as the voluntary but irrational delay of an intended course of action, despite having the opportunity to act and expecting to be worse off as a result of the delay (Wieber & Gollwitzer, 2010). Procrastination can lead to lower academic performance: procrastinators make more errors, work slower, and miss more deadlines than non-procrastinators (Abassi & Alghamdi, 2015). Ferrari and Beck (1998) show that procrastinators are also found to be more prone to fraud. Their study showed that academic procrastinators, compared to non-procrastinators, more often made up phony excuses – e.g. personal illness – to get out of an assignment. Procrastination seems to occur more among men than women, with a peek in the mid-twenties (Steel & Ferrari, 2013; Schubert & Stewart, 2000).

Causes of procrastination include fear of failure, task aversiveness – the extent to which a task is perceived as unpleasant or unenjoyable – and low frustration tolerance (Ferrari, Johnson & McCown, 1995; Solomon & Rothblum, 1984; Kim & Seo, 2015). Kim and Seo (2015) found that procrastinators are often publicly self-conscious and highly self-critical, while at the same time they lack self-efficacy and self-esteem. Other causes of procrastination that have been mentioned by the literature include poor time management, inability to concentrate on work, negative beliefs about one’s capabilities, unrealistic expectations, perfectionism, feelings of being overwhelmed, impulsiveness, and distractibility (Balkis & Duru, 2007; Steel, 2007; Lay & Schouwenburg, 1993; Steel, Brothen & Wambach, 2001; Tice & Baumeister, 1997; Rozental & Carlbring, 2013). Finally, stress is found to be both a cause and consequence of procrastination (Burka & Yuen, 2008). Since being mindful means accepting situations as they come, without judgment (Kabat-Zinn, 2001), mindfulness can be investigated as a treatment for procrastination resulting from all these possible causes.

A review by Van Eerde (2000) has suggested several ways to overcome procrastination. When the cause of procrastination is lack of competencies relevant to self-regulation, these can be trained through self-knowledge, self-monitoring and feedback seeking. This can lead to setting more realistic goals. Since the current research will also focus on planning skills, this cause is most relevant for the current study. If, however, the cause is perceived incompetence, increased self-efficacy would lower the likelihood of procrastination. Furthermore, when the cause of procrastination is distraction, it might help to increase the proximity and value of the task at hand, and decrease the proximity and value of the distraction. When pleasant distractions are more distal, people might be less inclined to give in to these distractions and stay on the task they are supposed to do. A way to increase the value of a task is by making the intentions public, this enhances goal attainment. It can also be helpful to alter the conditions in which one is working, such as maintaining a clean desk or switching off telephones or email (Van Eerde, 2000; Chase et al., 2013).

Finally, possible treatments for procrastination have been mentioned in a clinical setting. One can make use of these types of treatment when faulty, negative thoughts have become automatic (e.g. the thought: “I am a failure”), or when the results of procrastination lead to complex problems (Ramsay, 2002). These therapies include setting realistic goals, reassessing a patient’s circumstances, and modifying misconceptions and faulty informational processing (Ramsay, 2002). Balkis and Duru (2007) also mentioned general counseling, psychotherapy, relaxation training, and stress inoculation training to reduce procrastination. Furthermore, behavioural activation could be used as a treatment for procrastination, which teaches individuals to change delaying behavioural patterns so that tasks and commitments are addressed rather than avoided. This can be achieved by graded exposure to the tasks one is procrastinating, and a re-evaluation of work methods (Rozental & Carlbring, 2013). In academic settings, strategies to overcome procrastination include structured goal setting, breaking assignments down into smaller pieces, and changing cognitions such as perfectionism or fear of failure (Balkis & Duru, 2007).

When regarding all possible ways to overcome procrastination, one solution seems to be the most evident: procrastination might be overcome by planning (Wieber & Gollwitzer, 2010; Van Eerde, 2000; Ramsay, 2002; Balkis & Duru, 2007). Planning is defined as the ability to organize cognitive behaviour in time and space (Lazeron et al., 2000). Effective planning includes setting realistic goals. Wieber and Gollwitzer (2010) have shown that the use of implementation intentions is an effective way to plan, and thus overcome procrastination. Implementation intentions are plans that specify how people will pursue their goals, visualizing the concrete time and place in which this will happen, and stating this out loud to oneself. Implementation intentions are preferably described as if-then plans, in which people state when, where, and how they intend to pursue a goal. By specifying the ‘if’, the critical situation gets activated, and by specifying the ‘then’, the initiation of the wanted action gets automated in response to that situation. An implementation intention could be: “When I get home from work, I will start preparing dinner immediately”. Implementation intentions have been shown to not only help people pursue their goals more often, people also obtained better results than when they did not use implementation intentions (Wieber & Gollwitzer, 2010). A meta-analysis by Gollwitzer and Sheeran (2006) has shown a medium to large effect size of implementation intentions over goal intentions alone (*d* = .65).

By now it may be clear that planning has a positive effect on procrastination, such that more effective planning lowers procrastination. For procrastinators, however, just making a more effective planning might be more complicated than it sounds. Procrastinators show comparisons with people suffering from ADHD – attention-deficit hyperactivity disorder, in the sense that they can be inattentive and impulsive (Niermann & Scheres, 2014). This might make it hard for them to plan efficiently. Even more so, procrastination is one of the possible symptoms of ADHD: according to the DSM-5, ADHD symptoms include impulsivity, disorganization, procrastination, and distractibility (American Psychiatric Association, 2013). Therefore, specific psychological treatments that help reduce symptoms of ADHD are expected to also affect procrastination. Even though ADHD will not be included as a variable in the current research, since procrastination is a symptom of ADHD, it is interesting to have a closer look into treatments for ADHD and regard these as possible treatments for procrastination.

Research on alternative treatments of ADHD have led to an interesting discovery, namely, that meditation might have a lowering effect on the symptoms of ADHD. Travis, Grosswald and Stixrud (2016) have shown that transcendental meditation (a form of meditation characterized by concentration and focus) can reduce ADHD symptoms in children of 11 – 14 years old. The parents of these children reported that, after six months of transcendental meditation, their children were better able to focus on schoolwork, had better organizational abilities, were better able to work independently, and reported being happier and having better quality of sleep (Travis, Grosswald & Stixrud, 2016).

The effects of other types of meditation, namely, mindfulness meditation, on ADHD have also been investigated. Zylowska et al. (2008) found that after an 8-week mindfulness meditation training, 78% of participants reported a reduction in their total ADHD symptoms. Participants mainly showed decreases in inattention and hyperactivity (Zylowska et al., 2008). Especially decreases in inattention are of interest for the current research, since this is a trait of procrastination (Niermann & Scheres, 2014). Because of the fact that procrastination is a symptom of ADHD, and the effects of mindfulness meditation on ADHD, it is expected that mindfulness meditation will also have an effect on procrastination, in the sense that mindfulness meditation is expected to lead to lower procrastination.

*Hypothesis 1: Procrastination is lower among mindfulness meditators than non-meditators.*

In the aforementioned research by Travis, Grosswald and Stixrud (2016), a specific test was used to measure planning skills among ADHD patients, namely, the Tower of London test. The Tower of London is an effective measurement of planning skills, developed by Shalice (1982;Baker et al., 1996; Lazeron et al., 2000). In the Tower of London, participants are shown three sticks of different lengths, with three beads of different colours on them. The beads are positioned on the sticks in a certain way, after which participants will be asked to move them to a certain end state in as few steps as possible. Figure 1 shows an example of a Tower of London start and end state, where the quickest way to reach the end state is in four steps.

The Tower of London has been used to investigate the effect yoga training has on planning (Manjunath & Telles, 2001). After one month of yoga training, participants showed reduction in planning time on the Tower of London. Research by Rangan, Nagendra and Ramachandra Bat (2008) found similar effects. They compared boys between 11 – 13 years old in a modern education system, versus a Gurukula education system. The latter included yoga modules, while the former did not. Planning was measured by the Tower of London at the beginning and end of the academic year. The Gurukula education system was found to improve planning skills more than the modern education system. These researches have both been conducted in India, which might make their results less generalizable to other populations. However, because yoga and mindfulness meditation overlap with regard to relaxation and breathing exercises, it is expected that being more mindful might lead to better scores on the Tower of London. Hence, in the present study the Tower of London is used to measure the effect of mindfulness meditation on planning.

*Hypothesis 2: Planning skills increased among mindfulness meditators compared to non-meditators.*

Meditation is a phenomenon that has received increased interest over de past few decades (Delmonte, 1990; Travis, Grosswald & Stixrud, 2016). Interesting results have come up in empirical research, such as increased thickness of cortical regions of the brain in participants who meditated daily over the course of several years (Lazar et al., 2005). Meditation is a very broad term, of which many different types can be distinguished. These types, however, can all be divided into three broad categories: meditation with a focus on a specific object or mantra (concentrative meditation, such as transcendental meditation), meditation with a focus on the field as a whole (such as mindfulness meditation), or a shifting back and forth between these two types (Delmonte, 1990). The current research focuses on mindfulness meditation.

Mindfulness is defined as: “Paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn, 2001, p. 23). This attention could point to breathing, perception, emotions, cognitions, or bodily sensations. When mindful, this means one is truly present in the here and now, and hence experiences daily activities fully aware, as they are, without being manipulated (Irving, Dobkin & Park, 2009). Being mindful can lead to greater awareness, clarity, and acceptance of reality. Mindfulness meditation has been shown to reduce anxiety, reduce negative affect and increase hope (Sears & Kraus, 2009; Zylowska et al., 2008). Effects have even been shown on brain and immune functions: after an 8-week mindfulness training, participants injected with the influenza vaccine showed significant increases in antibody titers (Davidson et al., 2003). Thus, mindfulness meditation can have great effects on the human mind and body. There are several training programs that offer ways to learn to be more mindful, two of which will be discussed.

Mindfulness-based cognitive therapy (MBCT) is one way to acquire mindfulness (Baer, 2003). It is an 8-week program in which participants learn to become more aware of their thoughts, feelings, and bodily sensations. They also learn to relate differently to these thoughts, and detach themselves from negative ones. For instance, statements such as “thoughts are not facts” and “I am not my thoughts” are often used. MBCT thus aims at changing participants’ relationship to unwanted thoughts, feelings and bodily sensations so that they can prevent the escalation of negative thoughts and thought patterns (Baer, 2003). MBCT has been proven very effective in the treatment of depressive disorders. It has been shown that in recovered depressed patients with three or more previous episodes of major depression, MBCT more than halved relapse rates (Teasdale et al., 2000; Helen Ma & Teasdale, 2004). Research by Huijbers, Spinhoven, van Schaik, Nolen and Speckens (2016) has even shown that in the treatment of depression, patients with a preference for medication (antidepressants) did equally well as patients preferring mindfulness in an MBCT intervention. Chances of relapse were equal for both groups (Huijbers, Spinhoven, van Schaik, Nolen & Speckens, 2016).

MBCT contains parts of Mindfulness-Based Stress Reduction training (MBSR), which is another training program for mindfulness. MBSR is a psycho-educational program, developed by Kabat-Zinn in 1979 (Kabat-Zinn, 1982). During an MBSR training, participants are taught various types of meditation practices. They learn how to perform these in class, but also at home during their regular day-to-day activities. An MBSR training usually lasts 8 weeks, with daily sessions of between 1 and 2.5 hours and one day of silence in between the 6th and 7th week. MBSR training has been shown to improve several physical and mental conditions, such as psoriasis (Kabat-Zinn et al., 1998) and social anxiety disorder (Goldin & Gross, 2010). MBSR has even shown effects among cancer survivors, such as improved mood, lower symptoms of stress, lower levels of depression and anxiety, and lower fear of recurrence (Speca, Carlson, Goodey & Angen, 2000; Lengacher et al., 2008).

Previous results are all mentioned after 8-week programs, however, shorter training programs have also proven effective. Research by Zeidan, Johnson, Diamond, David and Goolkasian (2010) has shown that after only four days of meditation training (compared to listening to a recorded book) participants experienced increased mindfulness, reduced fatigue, and reduced anxiety. Moreover, brief mindfulness training significantly improved executive functioning. Since planning falls under the executive functions of the brain, and Jaffe (2013) has shown that procrastinators had associations with all aspects of executive functioning (namely: impulsivity, self-monitoring, planning and organization, activity shifting, task initiation, task monitoring, emotional control, working memory, and general orderliness), this suggests that even a short meditation training might have a positive effect on planning. The current research, however, will focus on the 8-week training as developed by Kabat-Zinn (1982).

Since it is expected that mindfulness meditation leads to better planning, and planning leads to a lower extent of procrastination, it is expected that planning mediates the relationship between mindfulness meditation and procrastination. Though mindfulness related to procrastination has been investigated in other ways (mindfulness as a mediator in the relationship between procrastination, stress and health: Sirois & Tosti, 2012), the current research will be the first to investigate the relationship between mindfulness and procrastination through planning.

*Hypothesis 3: Planning mediates the relationship between mindfulness meditation and procrastination.*

In sum, mindfulness meditation is expected to have a negative (lowering) effect on procrastination (hypothesis 1). Mindfulness meditation is expected to have a positive effect on planning (hypothesis 2). Finally, mindfulness meditation is expected to lead to more effective planning, which in turn leads to less procrastinating (hypothesis 3).

**Method**

**Participants**

This research will consist of 50 participants.

**Materials**

*Procrastination*. To measure procrastination, a Dutch translation of the General Procrastination Scale (Lay, 1986) was used. This scale was translated by Schouwenburg (1994) and validated for Dutch use (α = .82). The General Procrastination Scale consists of 20 items that measure procrastination in different situations. Items will be answered on a 5-point Likert scale (*1 = never, 2 = rarely, 3 = sometimes, 4 = usually, 5 = always*). An example of an item is: “When I have a deadline, I wait till the last minute”. A higher total score indicates a higher tendency for procrastination.

*Mindfulness.* To measure individual differences in the frequency of mindful states over time, a Dutch translation of the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) was used. This scale was translated by Schroevers, Nyklícek and Topman (2008) with a Cronbach’s alpha varying between .81 and .87. The MAAS consists of 15 items that will be answered on a 6-point Likert scale (*1 = almost always, 2 = very frequently, 3 = somewhat frequently, 4 = somewhat infrequently, 5 = very infrequently, 6 = almost never).* An example of an item is: “I could be experiencing some emotion and not be conscious of it until some time later”.

*Tower of London*. Planning will be measured by the Tower of London (Shallice, 1982). In this test (α = .79), participants will be shown three beads, one red, one blue and one green, on three sticks of different lengths. The first stick can hold three beads, the second can hold two beads, and the third can hold just one. The initial position of the beads will always be the same, but participants will have to move the beads to get to a certain end state, of which they will be shown a picture. They will be asked to reach this end state in a minimum number of moves. Possible problems vary from 2 to 6 moves deep, which indicate low to high difficulty. In the easier levels, the planning required is minor. In harder problems, however, more complex planning is required. Both the amount of steps participants need to get to the desired end state and the time needed to perform this process will be measured. The higher the scores on both of these components, the lower a participant’s score on planning.

*Demographic variables*. Questions regarding age and gender will be included in the survey. Participants will be asked why they decided to enrol in the training, and after completing the training, whether they have reached their personal goals. Furthermore, because mindfulness training focuses, among other things, on acceptance without judgment, it will be interesting to see whether participants might be more accepting of their procrastination after the training. Perhaps the procrastination itself might not have changed, but participants will feel less negative towards it. Therefore, there will be an item questioning the extent to which participants would be bothered by a high score on procrastination. Finally, as can be seen in appendix 2, participants will be asked whether they have performed mindfulness, or other types of meditation, before. If so, they will be asked how long they have done this, whether they still perform this type of meditation, and how often.

**Procedure**

Participants of this study will already have enrolled in an 8-week mindfulness training (with content as provided by Kabat-Zinn, 1982), each for their own reasons. Organizations that offer an 8-week mindfulness meditation training will be approached. The purpose of this study will be explained, and they will be asked permission to approach the people that signed in for their training. The participants that signed in for the training will be approached via email. In this email participants will receive information about the current research, as well as informed consent. They will be asked to fill in two surveys, one before starting and one after completing the 8-week training. Both times the survey, consisting of the 20 items of the General Procrastination Scale (Lay, 1986), the 15 items of the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Tower of London test (Shallice, 1982), and additional questions, will be sent to them via email.

All data will be stored securely. Because the before and after surveys will be compared within subjects, each participant will be assigned a participant number, which will link the right before and after measures together. In no other way can these numbers be linked to the participants. Before the start of the first survey, participants will receive informed consent by email. They will give permission for storage of their data for the current research by clicking on a link, that will also start the first survey. The first email will be sent a week before the start of the mindfulness training. The second email containing the second survey will be sent on the last day of the 8-week training. Both times participants will be given a week’s time to fill in the survey.

**Statistical analysis**

Two linear regressions and a multiple regression analysis will be performed. Whether mindfulness meditation as an independent variable has an effect on planning as a dependent variable will be checked using linear regression. Also using a linear regression, we will check whether mindfulness meditation (independent variable) is a predictor of planning (dependent variable). Finally, a multiple regression analysis will be performed to analyse whether the relationship between mindfulness meditation (independent variable) and procrastination (dependent variable) is mediated by planning. Because the difference between the two surveys (before and after the mindfulness training) will be investigated, this research concerns a within-subjects design. The data will be analysed using the Statistical Package for the Social Scientists (SPSS, standard version 20, 2011).

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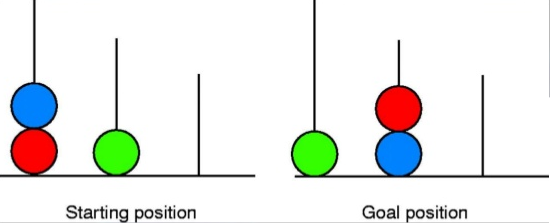
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*Figure 1.* Tower of London test: 4 steps.

**Appendix 1: General Procrastination Scale – Dutch translation (Lay, 1986)**

*1 = nooit, 2 = zelden, 3 = soms, 4 = meestal, 5 = altijd*

1. Ik ben vaak bezig met dingen die ik al veel eerder had moeten doen.

2. Ik begin pas op het laatste nippertje voor een tentamen te werken.

3. Als ik een bibliotheekboek uit heb, lever ik het meteen in.

4. Als het 's ochtends tijd is om op te staan, kom ik meteen uit bed.

5. Als ik een brief schrijf, zit er nogal wat tijd tussen het schrijven en het op de bus doen.

6. Als ik iemand moet terugbellen, doe ik dat meteen.

7. Kleine klusjes laat ik dagen liggen.

8. Ik neem mijn beslissingen zo snel mogelijk.

9. Ik heb de neiging verplichtingen uit te stellen.

10. Ik moet me gewoonlijk haasten om mijn werk op tijd af te krijgen.

11. Als ik weg moet, zijn er op het laatste moment nog dingen te doen.

12. Zelfs als ik dringend iets af moet maken, ben ik nog andere dingen aan het doen.

13. Ik ga het liefst vroeg naar een afspraak.

14. Als ik een opdracht moet uitvoeren, begin ik er meteen aan.

15. Ik heb een taak eerder klaar dan strikt nodig is.

16. Sinterklaas- en verjaardagscadeautjes koop ik op het laatste moment.

17. Zelfs belangrijke dingen koop ik op het laatste moment.

18. Alle dingen die ik me op een dag voorgenomen heb, doe ik ook.

19. Ik merk dat ik dingen tot morgen uitstel.

20. Ik zorg ervoor dat ik alle dingen die ik moet doen overdag klaar heb, zodat ik 's avonds kan uitrusten.

**Appendix 2: Mindful Attention Awareness Scale – Dutch translation (Brown & Ryan, 2003)**

1. Ik kan een emotie ervaren en mij daar pas later bewust van zijn.  
2. Ik breek of mors dingen door onzorgvuldigheid, onoplettendheid of doordat ik er met mijn gedachten niet bij ben.   
3. Ik vind het moeilijk om mijn aandacht te houden bij wat er op dat moment gaande is.   
4. Ik heb de neiging snel naar mijn bestemming te lopen, zonder aandacht te schenken aan wat ik onderweg meemaak.   
5. Ik merk lichamelijke spanning of ongemak pas op als deze echt mijn aandacht trekken.   
6. Ik vergeet iemands naam bijna meteen als ik die voor de eerste keer hoor.   
7. Het lijkt er op dat ik dingen automatisch doe zonder mij erg bewust te zijn van wat ik aan het doen ben.   
8. Ik voer activiteiten haastig uit, zonder er echt aandacht aan te schenken.  
9. Ik ben zo gericht op een doel, dat ik het zicht verlies op wat ik op dit moment aan het doen ben om dat te bereiken.   
10. Ik doe klussen en taken automatisch, zonder mij bewust te zijn van wat ik aan het doen ben.   
11. Ik merk dat ik met een half oor naar iemand luister en ondertussen met iets anders bezig ben.   
12. Ik ga op ‘automatische piloot’ ergens heen en vraag mij dan af waarom ik daar ook alweer heen ging.  
13. Ik merk dat ik erg bezig ben met de toekomst of het verleden.   
14. Ik merk dat ik dingen doe zonder er aandacht aan te besteden.   
15. Ik eet haastig zonder er bewust van te zijn dat ik aan het eten ben.

**Appendix 3: Qualtrics content**

Beste deelnemer,  
Voor mijn masterstudie Sociale Psychologie aan de Vrije Universiteit Amsterdam doe ik onderzoek naar het effect van mindfulness meditatie op planning en uitstelgedrag. Ik wil daarom ongeveer 15 minuten van je tijd vragen om dit onderzoek in te vullen. De vragenlijst is opgebouwd uit een standaard vragenlijst over uitstelgedrag waarin 20 vragen zijn opgenomen, daarna volgt een korte test om planningsvaardigheden te meten.   
Deelname is vrijwillig en de gegevens zullen strikt vertrouwelijk en anoniem verwerkt worden. Je emailadres wordt enkel gebruikt om je de vragenlijsten door te mailen. Voor vragen kun je contact opnemen met e.k.bosch@student.vu.nl.   
Hartelijk dank voor je deelname!  
Met vriendelijke groet,  
Eline Bosch  
  
Geslacht: man/ vrouw  
Leeftijd  
Emailadres

Waar heb je de mindfulness training gevolgd?

Wat is de reden dat je je hebt ingeschreven voor deze training?

In tweede vragenlijst: Heeft de mindfulness training je geholpen bij het behalen van je doel/ de reden dat je meedeed?  
Heb je voor aanvang van deze training wel eens eerder mindfulness meditatie beoefend? Ja/ Nee  
Bij ja: Hoe lang heb je mindfulness meditatie beoefend?  
Heb je wel eens aan andere vormen van meditatie gedaan? Ja/ Nee  
Bij ja: Welke vorm van meditatie was dit?  
 Hoe lang heb je aan deze vorm van meditatie gedaan?   
 Doe je dit nog steeds? Ja/ Nee  
Bij ja: Hoe vaak per week beoefen je deze meditatie gemiddeld? <1 keer, 1-2 keer, 3-4 keer, 5-6 keer, >7 keer

In welke mate zou je het vervelend vinden om hoog te scoren op uitstelgedrag? 1 = helemaal niet erg, 2 = redelijk erg, 3 = neutraal, 4 = vrij erg, 5 = heel erg.  
  
**General Procrastination Scale**  
Vul in wat het meest op jou van toepassing is.

**Mindful Attention Awareness Scale (MAAS)**

Hieronder staan een aantal uitspraken over alledaagse ervaringen. Geef aan de hand van de 6-puntsschaal aan hoe vaak je deze gevoelens ervaart.  
  
**Tower of London test**  
Er volgt nu een test. Je krijgt straks drie staven te zien met gekleurde ballen erop. Deze ballen zitten op een bepaalde manier op de staven. Je krijgt ook een plaatje te zien van de manier waarop de ballen terecht moeten komen. Je kunt de ballen verplaatsen door eerst op de bal, en vervolgens op de staaf waar je deze naartoe wilt brengen, te klikken. De bedoeling is de eindstaat die op het plaatje zichtbaar is zo snel mogelijk, in zo min mogelijk stappen te bereiken. Er volgt nu een voorbeeld.  
  
De vragenlijst is nu afgelopen. Nadat je de mindfulness training voltooid hebt, zul je een mail ontvangen met opnieuw de vraag deel te nemen aan dit onderzoek en de vragenlijst kort in te vullen. Dit opnieuw invullen van de vragenlijst is van groot belang voor mijn onderzoek. Als je geïnteresseerd bent in de uitkomsten van het onderzoek, kun je contact opnemen met e.k.bosch@student.vu.nl.   
Hartelijk dank!

**Appendix 4: Debriefing**

Geachte deelnemer,

Je hebt zojuist deelgenomen aan een onderzoek naar het effect van mindfulness meditatie op planning en uitstelgedrag. Om het effect van de mindfulness training te meten ben je zowel voor als na je training gevraagd een vragenlijst in te vullen. Deze vragenlijst bestond uit vragen over uitstelgedrag (gemeten middels de General Procrastination Scale), vragen over jouw algemene mate van mindfulness (gemeten middels de MAAS: Mindfulness Attention Awareness Scale), en een korte test. In dit testje (de Tower of London), waarin je gekleurde ballen moest verplaatsen om ze in een bepaalde eindstand te krijgen, zijn je planningsvaardigheden gemeten. Hierin werd gemeten in hoeveel stappen je tot de eindstand kwam, en hoe lang je hierover deed. Hoe sneller je tot een goede eindstand kwam, hoe hoger je score op planning.

Na afloop van je 8-weekse training heb je deze drie metingen opnieuw gedaan. Op deze manier kan het effect van de mindfulness training op planning en uitstelgedrag betrouwbaar gemeten worden. De verwachting is dat deelnemers na afloop van de mindfulness training hoger scoren op de mindfulness vragenlijst. Daarnaast is de verwachting dat zij effectiever kunnen plannen, waardoor ze hoger zullen scoren op de Tower of London test. Doordat zij beter kunnen plannen, wordt tevens verwacht dat deelnemers minder uitstelgedrag zullen vertonen. Mocht je na afloop van deze studie nog vragen hebben, dan kun je contact opnemen met Eline Bosch (e.k.bosch@student.vu.nl). Nogmaals bedankt voor je deelname!

Met vriendelijke groet,

Eline Bosch