

Creativity Triggered by Messiness: The Mediating Role of Mind-Wandering

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Abstract

Creativity is a unique ability of our human mind. Trends as automation and information systems drive the need for creativity. However, creativity has remained in a crisis for decades (Kim, 2011). There is little known about which factors exactly influence creativity during daily activities and in a working environment. Previous research has shown a positive effect of messiness on creativity, which can be explained by unconventional thinking (Vohs et al., 2013). However, the psychological mechanism which connects messiness with creativity remains unclear. This research hypothesizes that mind-wandering mediates this relationship. To test this, a between-subjects experiment was carried out, in which they were asked to complete a Remote Associates Test. The experiment environment was manipulated with two conditions (i.e., messy vs. ordered). Correlations and multiple regressions showed no relations between messiness, mind-wandering, and creativity. These findings suggest that messiness may not necessarily lead to mind-wandering, mind-wandering not necessarily leads to creativity, and messiness not necessarily leads to creativity. Compared with previous research, future research is needed to explain these contradictory findings.

Keywords: creativity, mind-wandering, environment, messiness

Creativity Triggered by Messiness: The Mediating Role of Mind-Wandering

The unique ability of the human brain to be creative is needed because routine tasks are increasingly supported by information systems (Baumgart et al., 2020). Automation trends drive the need for cognitive abilities such as cognitive flexibility, logical reasoning, problem sensitivity, and creativity even further (WEF, 2016). Despite the importance of creativity, research has shown us that creativity is in a crisis, as creativity scores have decreased for decades (Kim, 2011). From a broad perspective, creativity is needed in several domains as creating ideas, concepts, objects, inventions, and art (Andreasen, 2011). Although creativity is vital from a broad perspective, this research mainly focuses on creativity in daily life and a working environment.

Research indicates that messiness may positively influence creativity in daily life and a working environment (Vohs et al., 2013). In addition, many creative individuals who have won Nobel prizes aim for the fact that messy environments could serve as a helping hand. A famous quote from Albert Einstein is: *“If a cluttered desk is a sign of a cluttered mind, of what, then, is an empty desk a sign?”* (Vohs et al., 2013). Despite these findings, messy environments are not appreciated in society, as it has an expected relationship with low productivity, low income, and rudeness. Therefore, society expects to have a clean and ordered desk on the working floor (Vohs et al., 2016). Although multiple media aim for messy desks at work to stimulate creativity, most statements need scientific substantiation (Manzi A et al., 2019).

Current research on messiness indicates that it causes more disorderly and disparate ideas, which makes you break away from convention (Vohs et al., 2016). An article from Vohs et al. (2013) showed that a disorderly environment could separate people from conventions and encourage new thoughts associated with out-of-the-box thinking. The last-mentioned phenomenon corresponds with the fact that objects are literally taken out of a box

in a disorderly environment (Vohs et al., 2013). A possible explanation for why creativity increases during a convergent thinking task is that people mimic their physical environment (Vohs et al., 2016). Furthermore, creativity and messiness are connected to wild imagination, which brings ambiguity, unpredictability, and flexibility (Vohs et al., 2013). While messiness and creativity are connected, the psychological mechanism behind this is still unclear.

The psychological mechanism which connects messiness to creativity may be mind-wandering (Cotroneo, 2014). This cognitive process leads to a decrease in attention and brings behavior costs as advantages. (Leszczynski et al., 2017). At such a moment, creative thoughts arise, which are eventually triggered by mind-wandering (Baird et al., 2012). During idea generation of the creative process, there is most space for mind-wandering, as goal-oriented thoughts are more dominant than non-task-related thoughts (Schuurin, 2019). Research on the relationship between mind-wandering and creativity has led to contradicting findings that indicate that mind-wandering positively affects creativity. In contrast, others aim for the other way (Baird et al., 2012). Although it is suggested that mind-wandering relates to both messiness and creativity, it remains unclear if mind-wandering mediates the relation between messiness and creativity.

Research on the mediation of mind-wandering on messiness and creativity remains relatively unexplored and has some contradictory outcomes (Cotroneo, 2014). Previous research by Cotroneo (2014) suggests that mind-wandering has a negative than positive effect on creativity during a divergent thinking task. A possible explanation for this outcome is that people make more mistakes in a messy environment compared to an ordered environment (Mateo et al., 2013). As recent findings contradict the expectation of literature, it drives the need for further scientific research on mind-wandering as mediation between messiness and creativity.

The aforementioned literature and evidence explained the importance of creativity and the roles of messiness and mind-wandering during the creative process. It suggests that messiness influences creativity, whereas it is not proven what influence it exactly has. Furthermore, mind-wandering also influenced creativity, which can be seen as a mediating factor of messiness. Therefore, this research tries to explain the influence of messiness on creativity during idea generation in the creative process by taking mind-wandering as a mediator into account. The following question will be addressed: *To what extent does a messy environment influence creativity during idea generation, and is this mediated by mind-wandering?*

Theoretical Framework

2.1 Creativity

Creativity can be described as a process of bringing something new. More specifically, creativity is about the creation of an original and appropriate idea at the same time (Anderson, 1959). In addition, Mumford et al. (2013) state that creativity is an answer to a challenging and complex situation that may be new. Idea generation and innovation both capture the implementation of ideas (Anderson et al., 2014). For this research, the definitions of Mumford et al. (2013) and Anderson et al. (2014) will be used for creativity.

Creativity can take place on different levels (i.e., mini-c, little-c, pro-c, and big-c level). Little-c creativity is about creativity during daily activities (Kaufmann and Beghetto, 2009). For this research, creativity will be assessed on little-c level.

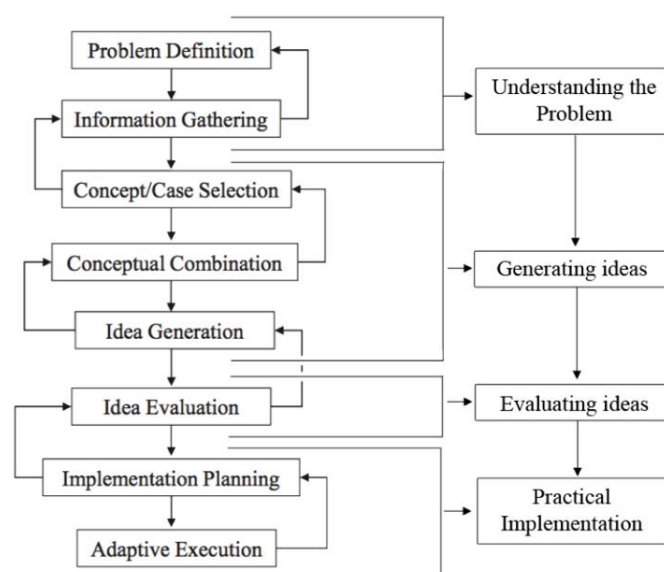
The process of creativity can be captured in eight phases (Mumford and McIntosh, 2017). These phases can be combined into four broader phases and starts with problem definition, as can be seen in Figure 1 (Isaksen et al., 2011; Mumford et al., 1991). Idea generation follows problem definition, for which it is essential to combine and organize new and existing knowledge to come up with new concepts and ideas. The creative process ends

with the evaluation of ideas and a practical implication. It is essential to mention that you barely go through this process from beginning to end, as you switch a lot between the different phases. Because there is most space for mind-wandering during idea generation, this research focuses on that phase within the creative process (Mumford and McIntosh, 2017).

Besides the different phases of the creative process, there also are different stages of creativity. Wallas (1926) distinguished preparation, incubation, illumination, and verification. Preparation refers to analyzing and defining the problem to get to know the problem. Incubation relates to the unconscious work of a problem where the mind goes further with the problem and starts to make associations without being conscious. Research indicates that moments of insight may occur more when mind-wandering happens (Baird et al., 2012). When there is a promising idea that crosses our conscious attention, it is during the illumination stage. As of last, verification refers to the evaluation, refinement, and development of an idea (Lubart, 2001). As this research focuses on unconscious thoughts as mind-wandering occurs, it will mainly reflect the incubation stage.

Figure 1

Creative Process



As this research mainly focuses on idea generation, several creativity factors must be considered. Rhodes (1961) captures creativity within the process, product, person, and place. The process refers to theories that aim to understand the psychological mechanism (e.g., mind-wandering) which is involved in creative thinking. In addition, place refers to the environment. Guilford's contextual factors (1967) also mention the environment as an important factor in which the person is asked to perform a creative task. In this study, process and place are important as they reflect both mind-wandering and the messiness of an environment. A distinction between convergent and divergent thinking can be made during idea generation. Both convergent and divergent thinking occur during the creative process and stages (Guilford, 1957). Divergent thinking starts with a problem, in which several solutions or ideas must be devised. On the other hand, there is convergent thinking, which starts with many ideas that have to be transformed into a solution. Therefore, both ways of thinking ask for other thought processes. As it is expected that out-of-the-box thinking helps to connect different ideas into one solution, it could be beneficial for both convergent and divergent thinking. Whereas previous research showed no significant effect on a divergent thinking task (Cotroneo, 2014), this research will focus on a convergent thinking task.

2.2 Messiness on creativity

Reasoning why the environment influences creativity can be explained by conventionality. It is given that an ordered environment inspires conventionality and follows traditional behavior (Simonton, 1999). As a result, a messy environment should encourage one to break with conventionality and the rules of conservatism to perform creative behavior (Dollinger, 2007; Simonton, 1999). Simonton (1999) suspected that breaking with conventionality is necessary to be creative. This indicates that more input and stimuli will benefit a problem that needs creative thinking. Accepting stimuli from an external environment to become more creative is beneficial, as these stimuli will result in new

insights, alternative formulations, and random associations. This could lead to creative solutions (Simonton, 1999). In addition, Vohs et al. (2013) state that a messy environment stimulates creative ideas with different insights than an ordered environment, which makes the environment an effective way to shape behavior. Combining the theory of conventionality with the finding that an environment is an appropriate way to shape behavior, explains the relationship between an environment and creativity. Therefore, the first hypothesis is:

Hypothesis 1 (H1): The messiness of an environment is positively related to creativity.

2.3 Messiness and mind-wandering

The psychological mechanism which might explain the relationship between messiness and creativity is mind-wandering. Irving (2016) defined mind-wandering as effortless, without a goal, unguided, and with the ability to concentrate on all information. It can be described as a voluntary failing of cognitive controls (McVay & Kane, 2010) and is suggested to take place half of the time that people are awake as a necessary part of our daily life (Mooneyham & Schooler, 2013). In practice, mind-wandering can be seen as adaptive, which helps us deal with boredom or disinterest (Baird et al., 2010) and forces us to think about the future to solve creative problems (Mooneyham & Schooler, 2013). Alongside the definition of Irving (2016), mind-wandering comes with multiple characteristics.

Mind-wandering is characterized by the disconnection of attention from immediate task context to non-task-related issues (Smallwood & Schooler, 2006; Schooler et al., 2011). In other words, the characteristics of mind-wandering relate to every form of distracting attention from a task of the environment to task-irrelevant issues (Mooneyham & Schooler, 2013; Zedelius & Schooler, 2015). So, it is identified as a form of unrelated, spontaneous, and stimuli-independent thinking (Christoff, 2012; Latinjak et al., 2014). According to Faber & D'Mello (2018), mind-wandering is caused by different elements such as task-related inferences, memories, stimuli, and environmental distraction. Therefore, it can be stated that

switching between task-relevant and unrelated issues can be done intentionally or without notion. Spontaneous thoughts are a non-related mental capability that is unintended to someone's mind, often related to things of significant personal meaning as thinking about information that is not relevant to the current task (Christoff, 2012; Latinjak et al., 2014). Given these findings, it may be clear that mind-wandering has different characteristics, which might influence the effect of mind-wandering.

There are several reasons which may cause mind-wandering during the creative process. It may occur when one is in personal thoughts or feelings of people (Sood & Jones, 2013). Other reasons, such as inspiration, thoughts, or materials, are more creativity related. Furthermore, related reasons such as mood, memories, planning, motivation, or personal reflection may cause mind-wandering. Lastly, external related reasons may cause mind-wandering, which can either be the direct or external environment (Schuurin, 2019).

As there are different reasons for the mind to wander, it is crucial to match the status of thoughts (e.g., mind-wandering) throughout the creative process. Research indicates that cognitions such as defocused attention and memory-related thoughts positively influence earlier stages in the creative process when problem definition is not done correctly. In later phases of the creative process (i.e., when the problem is well-defined), more focused attention and cognitive control may be more beneficial for the creative process (Vartanian, 2009). These findings indicate that the direct environment of someone may trigger mind-wandering during a creative thinking task. Therefore, the second hypothesis is:

Hypothesis 2: The messiness of an environment is positively related to mind-wandering.

2.4 Mind-wandering on creativity

While the reasons and moments for triggering mind-wandering are clear, the reason how it is related to creativity remains relatively unclear. A possible reason why a relationship between mind-wandering and creativity is expected is the sensitivity to irrelevant input.

According to Dreisbach & Goschke (2004), high sensitivity to irrelevant input or alternative options is precious and increases the chance of getting distracted or becoming more impulsive. Sensitivity can also increase cognitive and behavioral flexibility, wherefore the authors aimed that creativity could occur during daydreaming (Dietrich, 2004; Martindale, 1999) or distraction (Dijksterhuis & Meurs, 2006). Furthermore, Friedman and Forster (2005) proposed that creativity occurs through decreased attention and non-systematic random processes, which would result in the generation of associations that are more distance-related than existing ideas, and, therefore, more original (Nijstad et al., 2010). These findings suggest that the sensitivity to irrelevant input is one of the reasons why mind-wandering could potentially lead to increased creativity.

Another reason why mind-wandering is related to creativity is latent inhibition. It is based on the Latent Inhibition Theory, which describes that the underlying mechanism might be a reduction of latent inhibition (Lubow, 1989). The human brain selects and filters the focus of previously experienced stimuli as irrelevant, described as latent inhibition. These irrelevant stimuli are not inhibited for creative individuals, as they have a lower level of latent inhibition. Creative tasks have more elements to consider if irrelevant stimuli reach their focus. This may lead to more original answers and out-of-the-box thinking, which in turn increases creativity. Therefore, latent inhibition might be a factor in explaining the relationship between mind-wandering and creativity (Nijstad et al., 2010).

Findings of mind-wandering on creativity suggest that the explanation of the Latent Inhibition Theory may not be as simple as it sounds. Research by Baird et al. (2012) suggests that creative problem solutions profit from tasks stimulating mind-wandering. Furthermore, the integration of breaks that use less demanding tasks increased the creative performance of divergent thinking tasks. This overlaps with the findings of Dijksterhuis and Meurs (2006), who suggests that ways of unnoticed thinking as mind-wandering lead to less logical and

more creative results. Contrary to these indications, Baird et al. (2012) noticed that mind-wandering does not necessarily lead to improved creativity. They discovered that a specific approach to new problems did not lead to increased creativity, which is in line with the research of Hao et al. (2015). This could be due to the different characteristics of mind-wandering (e.g., intentional and unintentional). Despite the contradictory findings of previous research, we expect to find a relationship between mind-wandering and creativity due to the theoretical reasoning of the sensitivity of irrelevant stimuli (Dreisbach & Goschke, 2004; Nijstad et al., 2010) and the Latent Inhibition Theory (Lubow, 1989). Therefore, we expect to confirm the following hypothesis:

Hypothesis 3 (H3): Mind-wandering is positively related to creativity.

2.5 Mediating role of mind-wandering on messiness and creativity

In addition to our given hypotheses, the potential mediating role of mind-wandering on messiness and creativity will be discussed. Reasoning why messiness and creativity are related, it is suggested that conventionality may explain why messy environments stimulate creative ideas with different insights (Simonton, 1999), making it an effective way to shape behavior (Vohs et al., 2013). Furthermore, the role of messiness on mind-wandering could be explained by several reasons which may cause mind-wandering (e.g., creativity related, personal related, and external reasons) (Schuurin, 2019). This research focuses on external reasons, and more specifically the direct environment. The Latent Inhibition Theory explains the expected relation between mind-wandering and creativity (Lubow, 1989). As individuals perceive more irrelevant stimuli in a messy environment, there are more objects to consider for a creative thinking task. This may activate out-of-the-box thinking, which results in more original answers (Nijstad et al., 2010). Unless this expected relation, research on the mediating role of mind-wandering on messiness and creativity has given contradictory findings (Cotroneo, 2014). As current research mainly focuses on divergent thinking with

taking other moderators into account (e.g., Working Memory Capacity), this study will replicate previous studies with some adjustments (Cotroneo, 2014). Despite the contradictory findings on the mediating role of mind-wandering on messiness and creativity, we expect to find a positive relationship during a convergent thinking task. Based on this reasoning, the following hypothesis is expected:

Hypothesis 4: The relation between the messiness of an environment and creativity is mediated by mind-wandering.

Method

3.1 Design

A between-subjects experimental design was conducted to investigate the mediating role of mind-wandering on messiness and creativity. The experiment focused on idea generation during the creative process and came with a convergent thinking task. During the experiment, the environment was manipulated in either a messy or a structured environment. A messy environment can be considered a desk full of books, pencils, and notes without order. Contrary, the ordered environment was presented in a structured way. A picture of these conditions can be found in Figures 2 and 3. Other considered environmental issues are that the room does not include natural light or a window, so it is completely locked to the external environment except for noises. All participants were tested in the same room; therefore, it can be stated that only the messiness of the room differed. After approximately three participants, the condition of the room was changed to prevent all messy conditions were conducted on Friday, and all ordered conditions were on Monday.

Figure 2*Ordered room***Figure 3***Messy room*

3.1.1 Participants

The sample of this between-subjects design consisted of 58 participants ($M age = 22.82$, $SD age = 2.94$), 22 men ($M age = 23.23$, $SD age = 2.98$) and 35 women ($M age = 22.57$, $SD age = 2.92$) who were both sampled via the Human Subject Pool of Tilburg University as personal network. For participation, the students received 0.5 course credits. Both English (26.32%) and Dutch (73.68%) materials were used to limit the confounding of language knowledge.

3.2 Measures

3.2.1 Creativity

Creativity was measured with a convergent thinking task to determine the creative potential of participants. The Remote Associates Test (i.e., RAT) consisted of 30 items, for which participants had to fill out one word connected with the presented three (e.g., Fish, Mine, and Yellow are connected by Gold). For each word, there was only one correct answer. Both a Dutch and an English RAT were used to limit the confound of language knowledge, as a RAT can be considered as difficult when it is not in your native language.

3.2.3 Mind-wandering

To measure mind-wandering, participants had to fill out three probes during the convergent thinking task in Qualtrics. The probes to measure mind-wandering contain three five-point Likert scales (e.g., “Where was your attention focused just before this probe?”) and two open-ended-questions to indicate how their thought process was (e.g., “If your mind wandered off, what triggered this?”). These questions were gathered from previous research by Weinstein (2017).

3.2.4 Short Scale of Creative Self

Before participants started the experiment, the Short Scale of Creative Self (Karwowski, 2011; Karwowski et al., 2018) was used to measure the creative self-efficacy of

participants. It contained 11 five-point Likert scales (e.g., “I think I am a creative person”).

This measure was used to check whether this influenced the experiment's results.

3.3 Procedure

The procedure of the experiment was identical for both Dutch as English participants. No time limit is set, as research indicates that mind-wandering is limited when people have the pressure of a time limit (Cohen et al., 2007). In the pilot study, participants took approximately 30 minutes to complete the experiment.

3.3.1 Preparation

When the participants arrived at the location of the experiment, an explanation of the task was given. After a short introduction to the task, informed consent was asked for voluntary participation in this study. Therefore, they were allowed to stop at any moment during the study. After informed consent was given, they started to participate in this study. First, the participants must grab a paper with an anonymized three-digit number presented in a bowl. This number was filled out in each Qualtrics to connect the right questionnaires to the anonymized participant. An intro document of the experiment set-up clarified the main definitions. Before the experiment, the setting was prepared for the right condition (i.e., messy or ordered). Furthermore, the participants were asked to fill out the Short Scale of Creative Self (Karwowski, 2011), and they had to answer a few demographic questions that were used to explore the data.

3.3.2 Experiment

After the participants filled out the needed questionnaire in Qualtrics, they entered the conditioned room and filled out the 30-items RAT on a computer. During the RAT, three probes to measure mind-wandering were equally divided. All the questions can be found in appendix A.

3.3.3 Questionnaires

After the manipulation, the participants had to indicate their need for structure to determine if they preferred an ordered or a messy environment. This was asked as the relation between mind-wandering and creativity might be influenced by the sensitivity to irrelevant input (Dreisbach & Goschke, 2004). In addition, they also had to indicate the messiness of the room in which they completed the experiment to check whether the manipulation was successful. If all questionnaires were completed, the participants were politely thanked for their participation, and they optionally could leave their mail addresses for the results of the experiment. The average time measured for the participants was approximately 30 minutes.

3.4 Data Analysis

After the data was gathered via Qualtrics, it was analyzed in SPSS. Multiple independent *t*-tests were used to perform a manipulation check and to indicate if the perceived creative self, need for structure, and language was equally divided between the condition. Afterward, a simple mediation analysis was performed in SPSS using the Macro PROCESS of Hayes to assess whether the effect of messiness on creativity was mediated by mind-wandering (The PROCESS Macro for SPSS, SAS, and R, 2022).

Results

4.1 Checking data

4.1.1 Manipulation check

To test if the manipulation of a messy and an ordered room succeeded, participants were asked to reflect on the messiness of the room. They were asked to respond to the following two statements "The room was tidy" and "The room was messy". The items were measured on a 5-point Likert scale. Two independent *t*-tests were conducted with the condition as the independent variable (i.e., messy and ordered).

First, the manipulation of people in an ordered environment was checked. As the data were not normally distributed, more weight should be placed on the bootstrapped 95% CI. On average participants in the ordered condition ($M = 4.46$, $SD = 1.105$) experienced the room more ordered than people in the messy condition ($M = 1.94$, $SD = 1.289$). This difference is significant ($Mdif = 2.529$, $t(57) = 8.046$, $p < .001$) and generalizes to the population (95% CI 1.877, 3.094). The results represent a large effect ($d = 2.098$).

Secondly, the manipulation of the messy condition must be checked. As the data were not normally distributed, more weight should be placed on the bootstrapped 95% CI. On average people in the messy condition ($M = 4.16$, $SD = 1.098$) experienced the room messier than people in the ordered condition ($M = 1.61$, $SD = 1.197$). This difference is significant ($Mdif = -2.554$, $t(57) = -8.548$, $p < .001$) and generalizes to the population (95% CI, -3.102, -1.867). The results represent a large effect ($d = -2.229$).

4.1.2 Self-creativity check

To test if self-creativity is equally distributed through the conditions, an independent t -test is performed. The data is normally distributed. On average self-creativity in the ordered condition ($M = 3.80$, $SD = 0.70$) was higher than in the messy condition ($M = 3.63$, $SD = 0.53$). This difference was not significant ($Mdif = 0.18$, $t(57) = 1.11$, $p = .098$) and represents a small effect ($d = 0.29$). Therefore, it can be assumed that there was no significant difference in self-creativity between the two conditions.

4.1.2 Need for Structure check

To test if the Need for Structure is equally distributed through the conditions, an independent t -test is performed. The data for the ordered condition is not normally distributed. Therefore, the p -value may not be reliable and more weight should be placed on the bootstrapped 95% confidence interval that will be provided. On average, participants in the ordered condition ($M = 3.23$, $SD = 0.69$) reported a slightly higher Need for Structure

than participants in the messy condition ($M = 3.22$, $SD = 0.83$). The difference is not significant ($Mdif = 0.01$, $t(57) = .04$, $p = .261$) and represents a negligible effect ($d = 0.01$). Therefore, it can be assumed that there was no significant difference in the Need for Structure between the two conditions.

4.1.2 Language check

A Chi-square test is conducted to test if the messiness condition is equally divided among participants with a native language (i.e., Dutch) or non-native language (i.e., English). The participants ($N = 59$) are divided into two groups, the messy condition ($N = 31$) and the ordered condition ($N = 28$). Therefore, the assumption of frequency is met because the population is greater than 5. We observed that 25% of the people in the ordered room were non-Dutch speakers, so they filled out the English RAT and are therefore considered as non-native speakers. In the messy room, 53.3% of the participants were considered non-native speakers. The analysis showed no significant difference between the messiness condition and the native language speakers $X^2(1) = .005$, $p = .943$. Therefore, it can be assumed that there was no significant difference in language between the two conditions.

4.2 Hypothesis testing

The descriptive statistics and Pearson correlations are shown in Table 1. As the data were not normally distributed, bootstrapping was used to test the hypotheses.

Table 1*Descriptive statistics and Pearson Correlations*

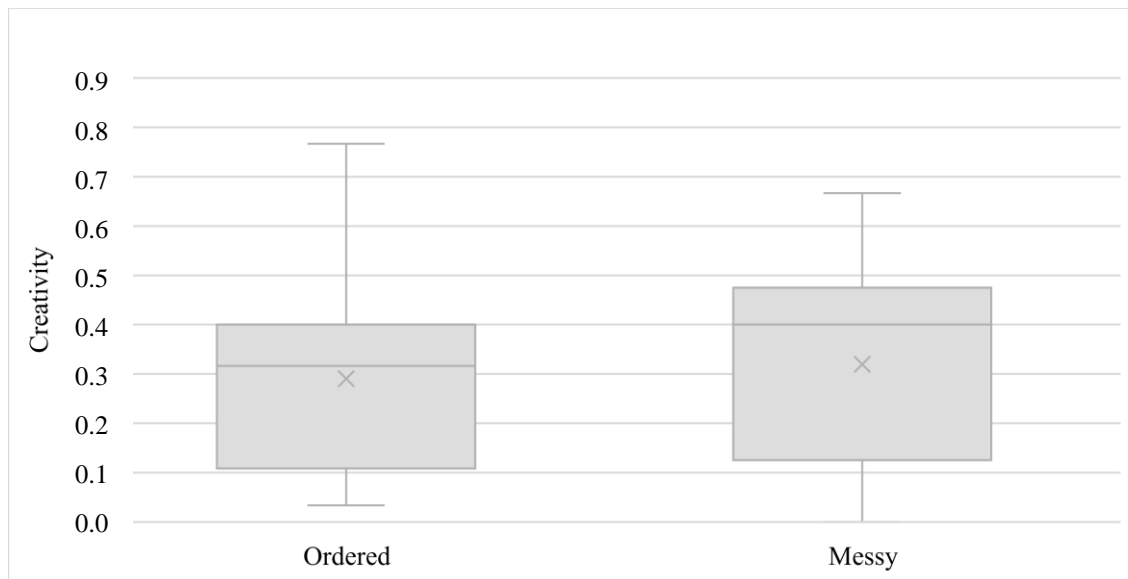
	N	Mean	Std. Deviation	Range	95% CI	1	2	3	4	5
1. Mes_con (condition)*	59	1.53	.504	1.00	1.38 - 1.65	-				
2. WAN_MEAN	58	2.39	0.63	3.22	2.22 – 2.55	.70	-			
3. RAT_MEAN	59	0.30	0.19	0.77	0.26 - 0.36	.44	.27	-		
4. Self_Creativity_MEAN	59	3.71	0.62	2.91	3.56 – 3.88	.30	.93	.61	-	
5. Need_structure_MEAN	59	3.22	0.76	3.75	3.01 – 3.41	.86	.37	.81	.26	-

Note. WAN_MEAN = Mean score of mind-wandering, RAT_MEAN = Mean score of RAT-items, Self_Creativity_MEAN = mean score of *Creative Self*, Need_structure_MEAN = Mean score *Need for Structure Scale*, * 1 = ordered condition; 2 = messy condition.

Messiness on creativity

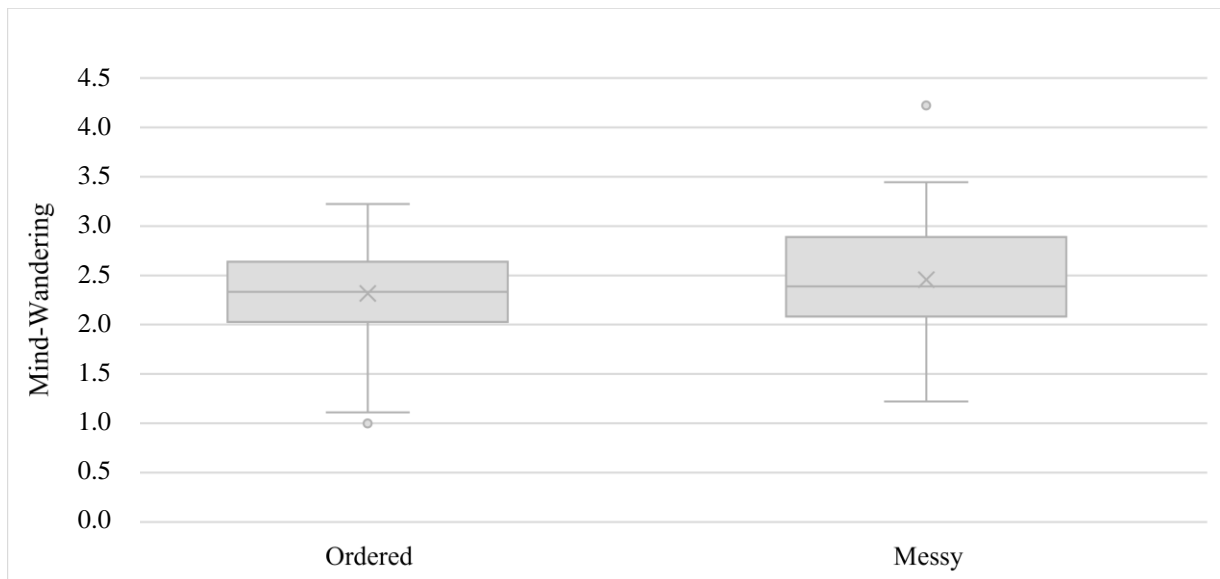
To investigate the role of messiness on creativity, we built a regression model with messiness as the independent variable and creativity as the dependent variable. The creativity scale had good reliability ($\alpha = .88$). Note that creativity is measured with 30 RAT-items for which you could earn one point per item, so higher scores mean a higher creativity score.

On average, participants scored a 0.30 ($SD = 0.19$) on the creativity scale. Given that you can earn one point per item, people scored relatively low on the RAT-items. The average creativity score of participants in the ordered condition was 0.29 ($SD = 0.19$), and for the messy condition, it was 0.32 ($SD = 0.20$). The creativity scores per condition can be found in Figure 4. Based on this analysis we can conclude that messiness does not significantly predict creativity ($R^2 = 0.77$, $F(1, 56) = .3301$, $p = .5679$).

Figure 4*Creativity scores per condition***Messiness on mind-wandering**

To investigate the role of messiness on mind-wandering, we built a regression model with messiness as the independent variable and mind-wandering as the dependent variable. Note that mind-wandering is measured with three probes of each question (e.g., How often did your mind wander between now and the beginning of the task?) on a 5-point scale (1 = Not at all, 5 = A lot), so higher scores mean more mind-wandering. The mind-wandering scale had good reliability ($\alpha = .78$).

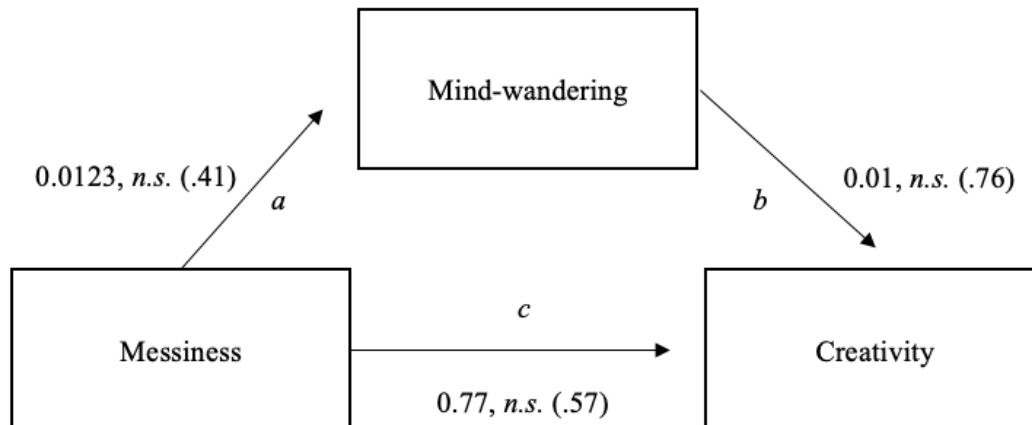
On average, participants scored a 2.39 ($SD = 0.63$) on the mind-wandering scale. Given that it was measured on a 5-point scale, people scored relatively average on this scale. The average mind-wandering score of participants in the ordered condition was 2.32 ($SD = 0.60$), and for the messy condition, it was 2.46 ($SD = 0.66$). The mind-wandering scores per condition can be found in Figure 5. Messiness does not significantly predict mind-wandering ($R^2 = .0123$, $F(1, 56) = .6983$, $p = .4069$).

Figure 5*Mind-wandering scores per condition***Mind-wandering on creativity**

To investigate the role of mind-wandering on creativity, we built a regression model with mind-wandering as an independent variable and creativity as the dependent variable. The creativity scale had good reliability ($\alpha = .88$). Mind-wandering does not significantly predict creativity ($R^2 = 0.0098$, $F(1, 56) = .2733$, $p = .7619$).

The mediating effect of mind-wandering on messiness and creativity

The unstandardized indirect effect (-.0027) of mind-wandering is calculated as the product of paths a (.1381) and b (-.0194) from the previous regression models. The unstandardized direct effect of messiness on creativity is .0318, which results in a total effect of .0291. As the zero (the null) does not fall between the lower and upper bound of the 95% confidence interval, we infer that the total effect of messiness goals on creativity is insignificant. Results of the mediation analysis can be found in Figure 6.

Figure 6*Results mediation analysis*

Discussion

This research aimed to answer the following question: “*To what extent does a messy environment influence creativity during idea generation, and is this mediated by mind-wandering?*”. To answer this question, a between-subjects design was created, in which the environment was manipulated (i.e., messy or ordered). Previous research indicated that a messy environment might increase creativity (Vohs et al., 2013). As a relation between messiness and creativity is suggested, this is explained by the psychological mechanism of mind-wandering. Research has found that messy environments may trigger mind-wandering, which in turn is positively related to creativity (Baird et al., 2012; Cotroneo, 2014). Therefore, a relation between the messiness of an environment and creativity was expected to be mediated by mind-wandering.

5.1 Interpretation of results

Before the hypotheses were tested, a few checks were done to interpret the data correctly. First, a manipulation check approved that the participants indeed perceived the messy condition as messier and the ordered condition as more ordered. Self-creativity, need for

structure, and language showed no significant differences between the messy and ordered conditions. Therefore, the data was ready to test the given hypotheses.

5.1.1 Hypothesis testing

The first hypothesis states that the messiness of an environment is positively related to creativity. Previous research has indicated that a messy environment may trigger creativity (Vohs et al., 2013). Contrary to previous research, the results did not find a significant effect between the messiness of an environment and creativity. These contradicting outcomes could be due to the difference between a convergent and a divergent thinking task. Other explanations might follow from the experiment, in which participants often reported feeling stupid. This may be the effect of the difficulty of the creative thinking task. Furthermore, participants mentioned having a decrease in attention over time due to the number of questions. Other factors influencing the experiment's outcome were the desire to finish and the external environment as people were talking outside the manipulated room. So, it can be suggested that messiness could have two effects on creativity. Given these contradictory findings, messiness could benefit creativity due to the stimulation of unconventionality, but it may also trigger distraction, which is a potential threat to creative performance.

For the second hypothesis, it was expected that the messiness of an environment is positively related to mind-wandering. This hypothesis was expected, as previous research indicated that messy environments could distract people, which leads to mind-wandering (Schuurin, 2019). Contrary to previous findings, this research did not confirm a significant relationship between the messiness of an environment and mind-wandering. The different findings may be due to the set-up of the study. People in the messy condition experienced the room significantly messier than people in the ordered condition. However, participants also mentioned that they got distracted by the environment, which may have influenced their performance during the creative thinking task in a negative manner. A nuance between mind-

wandering and distraction can be made, in which distraction is described as task-irrelevant and may include both external and task-unrelated mind-wandering (Forster, 2013). For this experiment, it could be the case that messiness not triggered mind-wandering, but distraction by the participants. Therefore, it is questionable whether the type of messiness (e.g., artificial or self-created) may influence mind-wandering differently.

For the third hypothesis, mind-wandering was expected to relate to creativity positively. Previous research indicated that free thoughts might trigger creativity (Baird et al., 2012). Although previous research expects a relation between mind-wandering and creativity, this research indicates no relation. The contradicting findings of this research may be due to the type of mind-wandering (i.e., intentional and unintentional) as it was an artificially created environment in which the participants in the messy mentioned doubt about whether to do something with the messy environment or not. Furthermore, mind-wandering was measured with self-report, which could potentially lead to outcomes other than the participants' actual behavior. In general, it can be stated that mind-wandering is not necessarily positively related to creativity, but this relationship may be dependent on several other factors (e.g., education, mood, gender, concentration, tiredness, openness, etc.).

For the fourth and last hypothesis, the relation between the messiness of an environment and creativity was expected to be mediated by mind-wandering. Theoretical reasoning assumes that mind-wandering may be the psychological mechanism that connects the messiness of an environment to creativity (Dreisbach & Goschke, 2004; Lubow, 1989; Nijstad et al., 2010; Baird et al., 2012). Previous research on this mediating relationship has shown no significant relationship (Cotroneo, 2014). Therefore, this research aimed to replicate previous studies and improve them to investigate the mediating relationship. In line with the previous study, this study also fails to confirm the mediating role of mind-wandering

on messiness and creativity. Therefore, it can be stated that the relation between the messiness of an environment and creativity is not always mediated by mind-wandering.

5.2 Implications

This research is essential for creativity in general, as it is a unique ability of the human brain and routine tasks are increasingly supported by information systems (Baumgart et al., 2020). Automation trends urge the need to be creative in daily life and a working environment (WEF, 2016). Whereas previous studies investigated the relation between messiness and creativity, this research focused on the psychological mechanism of mind-wandering as mediating factor. Although there was no significant relation found, it is essential to mention that it is not only important to confirm hypotheses but also to reject an idea. Future research may build further on these findings to better understand the relation between messiness and creativity by considering another mediating variable as mind-wandering.

From a theoretical point of view, this research contributed to current knowledge by testing mind-wandering as mediating factor between messiness and creativity. Literature reasons that mind-wandering may occur during daydreaming when you get distracted. The Latent Inhibition Theory states more elements in a messy environment might benefit creative ideas (Lubow, 1989). This research has not found this effect, suggesting that messiness or distraction can also harm creativity. Other theories on the Dual Pathway to Creativity support this reasoning and aim for creativity in full attention (Nijstad et al., 2010). Therefore, it can be stated that the results of this study suggest that the relation between messiness, mind-wandering, and creativity may be less beneficial than mentioned before.

As practical implications, it must be considered that messy environments, in general, do not always stimulate creativity. This research has not found any effect, but other research suggests that messiness could distract people. Therefore, it is important to consider these

contradictory findings as an organization in their working environment and daily tasks. It must be clear that messiness does not necessarily lead to mind-wandering or increased creativity.

5.3 Limitations & future research

As all hypotheses are disconfirmed, possible limitations of this study can be the reason. The first limitation is the messiness of the manipulated environment, which was artificially created for the participants instead of by themselves. This may cause confusion and distraction when they enter the room and start with the creative thinking task. On the other hand, if participants had created their mess, it would have introduced other limitations, as the messiness of the environment was not the same. Overall, it is important to consider that the messiness was different from a real-life situation, which is something to improve for future research.

Another limitation is the sampling of participants, which was done by using the participants pool of Tilburg University, alongside with convenience sampling via own network. Besides the sample size being too small to capture differences, it should also be mentioned that other populations, in general, may have led to other results. Regarding feasibility, this method can be seen as the most logical for this research. Future research might look at narrowing down a specific field (e.g., marketers, designers, writers) instead of a more general creative thinking task.

A last key limitation of this research is using self-reports to measure mind-wandering. In addition, probes during the creative thinking task were used to assess their thoughts during the experiment. This may have distracted them more from the creative thinking task than the manipulation of a messy environment itself. Future research may consider this to limit the confounding factor of self-reports and probes for mind-wandering.

5.4 Conclusions

Given these findings, it can be suggested that messiness leads to distraction. However, it remains unclear whether messiness significantly affects creativity. Future research should build further on these findings to give more clarity. For now, organizations and society, in general, should be aware that messiness is not necessarily good or bad for creative tasks. It could be that it is very different from person to person and contextual factors (e.g., weather, mood, energy, etc.) whether you are more or less creative. Hopefully, future research can give a clear and concise answer to the rhetorical question of Albert Einstein: “*If a cluttered desk is a sign of a cluttered mind, of what, then, is an empty desk a sign?*” (Vohs et al., 2013).

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Appendix

Appendix A: Questionnaires

Thesis - Before Conditioned Room

Consent **Title: Eureka! How does creativity work?**

Welcome,

Thank you for considering participating in this study by Tilburg University! Below you can find the information you need to know before you can start, *so please read it carefully.*

The purpose of this study is to investigate the how messiness influences creativity when performing a creative task and what role does mind-wandering play in it. Therefore, you will be asked to complete a task where you need to solve word puzzles, which arguably indicate something about creative ability.

Before this, you are asked to fill out an online questionnaire about demographic information, along with your perceived creativity. You will then enter the room where you will do the task. You may then enter the next room to start with the experiment. Afterwards you are again asked to fill out a questionnaire about the perceived messiness and your need for structure. The study takes approximately 30 minutes of your time.

There are no risks associated with participating in this study. All data collection is in accordance with the AVG (General Data Protection Regulation) law. The Research Ethics and Data Management Committee of Tilburg School of Humanities and Digital Sciences has reviewed and given permission to conduct this study. Data will be processed completely

anonymously and treated with the utmost confidentiality. Under no circumstance will your name be linked to the results. The anonymized data from this study will be kept for 10 years. Eligible students receive 0.5 HSP credit for their participation.

Participation is entirely voluntary and during this study, you have the right to withdraw at any time, for any reason, and without any adverse consequences. You also have the right to have your data deleted upon request. If you have questions about this study you may contact Supraja Sankaran (s.sankaran@tilburguniversity.edu) or Alwin de Rooij (alwinderooij@tilburguniversity.edu). If you have any remarks or complaints regarding this research, you may also contact the “Research Ethics and Data Management Committee” of Tilburg School of Humanities and Digital Sciences via tshd.redc@tilburguniversity.edu.

When you agree to participate in this study, you confirm that you: have carefully read the information given above; are older than 16 years; know that you can withdraw at any time and without giving any reason; know that you can have your data deleted upon request; agree that your anonymized data will be stored for ten years; agree that the anonymized data can be used for possible follow-up research or scientific publications; agree that the anonymized data can be shared with other researchers;

I agree and want to start with this study (1)

I do not agree to participate in this study (2)



Please enter your 3-digit number which you received

What is your gender?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

What is your age?

Below you will find several sentences used by people to describe themselves. Please decide to what extent each of these statements describes you. There are no good or wrong answers.

	Definitely not (1)	Somewhat not (2)	Neither yes or no (3)	Somewhat yes (4)	Definitely yes (5)
I think I am a creative person (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My creativity is important for who I am (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know I can efficiently solve even	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

requiring

creative

thinking (8)

I am good at

proposing

original

solutions to

problems (9)

Creativity is

an important

part of myself

(10)

Ingenuity is a

characteristic

that is

important to

me (11)

Thesis - Conditioned Room



Please enter your 3-digit number which you received

You would see three stimulus words, and you should attempt to generate a fourth word, that, when combined with each of three stimulus words would result in word pairs that

are a common compound word or phrase. The solution word was associated with all three words of the triad by formation of a compound word (or phrase) (e.g., AGE / MILE / SAND from the compounds STONEAGE , MILESTONE, and SANDSTONE with the solution word STONE)

Man / Glue / Star

Dog / Pressure / Trie

Palm / Family / House

Room / Mask / Explosion

Iron / Ship / Train

Head / Bean / Pause

Inspection / Location / Weight

Bar / Dress / Glass

Coal / Country / Shaft

Cheese / Land / House

Where was your attention just before this probe?

	1. Completely on task (1)	2. (2)	3. (3)	4. (4)	5. Completely off-task (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How often did your mind wander between now and the beginning of the task?

	1. Not at all (1)	2. (2)	3. (3)	4. (4)	5. A lot (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much did you focus on your goal between now and the beginning of the task?

	1. Not at all (1)	2. (2)	3. (3)	4. (4)	5. A lot (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If your mind wandered off, what triggered this?

When you were focusing on the goal, what triggered this?

Rear / Stool / Matt

Swing / Bang / Roll

Flakes / Chain / Cap

Reed / Cube / Heart

Light / Dreams / Moon

Fish / Mine / Yellow

Worm / Cabinet / Founder

Bed / Sea / School

Ground / Fish / Money

Oil / Pack / Master

Where was your attention focused just before this probe?

	1. Completely on task (1)	2. (2)	3. (3)	4. (4)	5. Completely off-task (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How often did your mind wander between now and the previous probe?

	1. Not at all (1)	2. (2)	3. (3)	4. (4)	5. A lot (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much did you focus on your goal between now and the previous probe?

	1. Not at all (1)	2. (2)	3. (3)	4. (4)	5. A lot (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If your mind wandered off, what triggered this?

When you were focusing on the goal, what triggered this?

Cream / Fleet / Cake

Drum / Siege / Knife

Go / There / Day

Water / Chimney / Air

Chute / Coal / Container

Door / Work / Room

Night / Fat / Light

Arm / Field / Silent

Trap / Melon / Lily

School / Breakfast / Game

Where was your attention focused just before this probe?

	1. Completely on task (1)	2. (2)	3. (3)	4. (4)	5. Completely off-task (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How often did your mind wander between now and the previous probe?

	1. Not at all (1)	2. (2)	3. (3)	4. (4)	5. A lot (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much did you focus on your goal between now and the previous probe?

	1. Not at all (1)	2. (2)	3. (3)	4. (4)	5. A lot (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If your mind wandered off, what triggered this?

When you were focusing on the goal, what triggered this?

Do you think your answers to this probe add something new compared to those on the previous probe?

Yes (1)

No (2)

Thesis - After Conditioned Room

What is your 3-digit number?

Please indicate to what extent you agree with the following statements.

	Completely disagree (1)	- (2)	- (3)	- (4)	Completely agree (5)
The room was tidy (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The room was messy (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" answers to these questions. People are different, and we are interested in how you feel. Please respond according to the following 6-point scale:

everything in
its place. (4)

I enjoy being
spontaneous.
(5)

I find that a
well-ordered
life with
regular hours
makes my life
tedious (6)

I don't like
situations that
are uncertain.
(7)

I hate to
change my
plans at the
last minute.
(8)

I hate to be
with people
who are

unpredictable.

(9)

I find that a

consistent

routine

enables me to

enjoy life

more. (10)

I enjoy the

exhilaration

of being in

unpredictable

situations.*

(11)

I become

uncomfortable

when the rules

in a situation

are not clear.

(12)

Thesis - Before Conditioned Room (NL)

Consent Titel: Eureka! Hoe werkt creativiteit?

Welkom,

Bedankt dat u overweegt deel te nemen aan dit onderzoek van Tilburg University! Hieronder vindt u de informatie die u moet weten voordat u kunt beginnen, dus lees deze goed door.

Het doel van dit onderzoek is om te onderzoeken hoe rommeligheid de creativiteit beïnvloedt bij het uitvoeren van een creatieve taak en welke rol het afdwalen van gedachten daarin speelt. Daarom wordt u gevraagd een taak te voltooien waarbij u woordpuzzels moet oplossen, die mogelijk iets aangeven over uw creatief vermogen.

Hiervoor wordt u gevraagd om een online vragenlijst in te vullen over demografische informatie, samen met uw waargenomen creativiteit. U komt dan in de ruimte waar u de taak gaat uitvoeren. U mag dan de volgende ruimte betreden om met het experiment te beginnen. Na afloop wordt u opnieuw gevraagd een vragenlijst in te vullen over de waargenomen rommel en uw behoefte aan structuur.

Er zijn geen risico's verbonden aan deelname aan dit onderzoek. Alle gegevensverzameling is in overeenstemming met de wet AVG (Algemene Verordening Gegevensbescherming). De Research Ethics and Data Management Committee van Tilburg School of Humanities and Digital Sciences heeft dit onderzoek beoordeeld en toestemming gegeven voor het uitvoeren van dit onderzoek. De gegevens worden volledig anoniem verwerkt en met de grootst mogelijke vertrouwelijkheid behandeld. Uw naam wordt in geen geval aan de resultaten gekoppeld. De geanonimiseerde gegevens uit dit onderzoek worden 10 jaar bewaard. In aanmerking komende studenten ontvangen X HSP-punten voor hun deelname.

Deelname is geheel vrijwillig en tijdens dit onderzoek heeft u het recht om u op elk moment, om welke reden dan ook, en zonder nadelige gevolgen terug te trekken. Ook heeft u het recht om uw gegevens op verzoek te laten verwijderen. Voor vragen over dit onderzoek kunt u contact opnemen met Supraja Sankaran (s.sankaran@tilburguniversity.edu) of Alwin de Rooij (alwinderooij@tilburguniversity.edu). Voor opmerkingen of klachten over dit onderzoek kunt u ook contact opnemen met de “Research Ethics and Data Management Committee” van Tilburg School of Humanities and Digital Sciences via tshd.redc@tilburguniversity.edu.

Wanneer u akkoord gaat met deelname aan dit onderzoek, bevestigt u dat u: bovenstaande informatie aandachtig gelezen heeft; ouder bent dan 16 jaar; weet dat u zich op elk moment en zonder opgave van reden kunt terugtrekken; weet dat u op verzoek uw gegevens kunt laten verwijderen; ermee akkoord gaat dat uw geanonimiseerde gegevens tien jaar worden bewaard; ermee instemt dat de geanonimiseerde gegevens gebruikt kunnen worden voor eventueel vervolgonderzoek of wetenschappelijke publicaties; ermee instemt dat de geanonimiseerde gegevens kunnen worden gedeeld met andere onderzoekers;

Ik ga akkoord en wil starten met deze studie (1)

Ik ga niet akkoord met deelname aan dit onderzoek (2)



Vul a.u.b. uw 3-cijferige nummer in dat u heeft ontvangen

Wat is uw geslacht?

- Man (1)
- Vrouw (2)
- Niet-binair / derde geslacht (3)
- Zeg ik liever niet (4)

Wat is uw leeftijd?

Hieronder vindt u enkele zinnen die mensen gebruiken om zichzelf te omschrijven.

Bepaal alstublieft in hoeverre elk van deze uitspraken u beschrijft. Er zijn geen goede of foute antwoorden.

	Absoluut niet (1)	Enigszins niet (2)	Geen ja of nee (3)	Enigszins wel (4)	Absoluut wel (5)
Ik denk dat ik een creatief persoon ben (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mijn creativiteit is belangrijk voor wie ik ben (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik weet dat ik zelfs ingewikkelde problemen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

efficiënt kan
oplossen (3)

Ik vertrouw op
mijn creatieve
vaardigheden (4)

Mijn
verbeeldingskracht
en vindingrijkheid
onderscheiden mij
van mijn vrienden
(5)

Ik heb al vaak
bewezen dat ik met
moeilijke situaties
om kan gaan (6)

Een creatief
persoon zijn is
belangrijk voor mij
(7)

Ik weet zeker dat ik
problemen aankan
die creatief denken
vereisen (8)

Ik ben goed in het
voorstellen van
originele
oplossingen voor
problemen (9)

Creativiteit is een
belangrijk
onderdeel van
mijzelf (10)

Vindingrijkheid is
een eigenschap die
voor mij belangrijk
is (11)

Thesis - Conditioned Room (NL)



Vul a.u.b. uw 3-cijferige nummer in dat u heeft ontvangen

U zou drie stimuluswoorden zien en u zou moeten proberen een vierde woord te genereren, dat, in combinatie met elk van de drie stimuluswoorden, zou resulteren in woordparen die een gemeenschappelijk samengesteld woord of zinsdeel zijn. Het oplossingswoord werd geassocieerd met alle drie de woorden van de triade door de vorming van een samengesteld woord (of zin) (bijv. KAMP / HAARD / GAS met het oplossingswoord VUUR).

Man / Lijm / Ster

Hond / Druk / Band

Palm / Familie / Huis

Kamer / Masker / Explosie

Strijkijzer / Schip / Trein

Kop / Boon / Pauze

Controle / Plaats / Gewicht

Bar / Jurk / Glas

Kolen / Land / Schacht

Kaas / Land / Huis

Waar was uw aandacht net voor deze onderbreking?

1. Volledig op de taak (1)	2. (2)	3. (3)	4. (4)	5. Volledig van de taak (5)
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- (1)

Hoe vaak dwaalden uw gedachten af tussen nu en het begin van de taak?

	1. Helemaal niet (1)	2. (2)	3. (3)	4. (4)	5. Heel veel (5)
--	-------------------------	--------	--------	--------	---------------------

- (1)

In hoeverre heeft u zich tussen nu en het begin van de taak op het doel gefocust?

	1. Helemaal niet (1)	2. (2)	3. (3)	4. (4)	5. Heel veel (5)
--	-------------------------	--------	--------	--------	---------------------

- (1)

Als uw gedachten afdwaalden, wat veroorzaakte dit dan?

Wat veroorzaakte dit toen u zich op het doel concentreerde?

Achter / Kruk / Mat

Schommel / Klap / Rol

Vlokken / Ketting / Pet

Riet / Klontje / Hart

Licht / Dromen / Maan

Vis / Mijn / Geel

Worm / Kast / Legger

Bed / Zee / School

Grond / Vis / Geld

Olie / Pak / Meester

Waar was uw aandacht vlak voor deze onderbreking?

	1. Volledig op de taak (1)	2. (2)	3. (3)	4. (4)	5. Volledig van de taak (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hoe vaak dwaalden uw gedachten af tussen nu en de vorige onderbreking?

	1. Helemaal niet (1)	2. (2)	3. (3)	4. (4)	5. Heel veel (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In hoeverre heeft u zich tussen nu en de vorige onderbreking op uw doel gefocust?

	1. Helemaal niet (1)	2. (2)	3. (3)	4. (4)	5. Heel veel (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Als uw gedachten afdwaalden, wat veroorzaakte dit dan?

Wat veroorzaakte dit toen u zich op het doel concentreerde?

Room / Vloot / Koek

Trommel / Beleg / Mes

Ga / Daar / Dag

Water / Schoorsteen / Lucht

Goot / Kool / Bak

Deur / Werk / Kamer

Nacht / Vet / Licht

Arm / Veld / Stil

Val / Meloen / Lelie

School / Ontbijt / Spel

Waar was uw aandacht vlak voor deze onderbreking?

	1. Volledig op de taak (1)	2. (2)	3. (3)	4. (4)	5. Volledig van de taak (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hoe vaak dwaalden uw gedachten af tussen nu en de vorige onderbreking?

	1. Helemaal niet (1)	2. (2)	3. (3)	4. (4)	5. Heel veel (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In hoeverre heeft u zich tussen nu en de vorige onderbreking op uw doel gefocust?

	1. Helemaal niet (1)	2. (2)	3. (3)	4. (4)	5. Heel veel (5)
- (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Als uw gedachten afdwaalden, wat veroorzaakte dit dan?

Wat veroorzaakte dit toen u zich op het doel concentreerde?

Denkt u dat uw antwoorden op deze onderbreking iets nieuws toevoegen in vergelijking met die op de vorige onderbreking?

Yes (1)

No (2)

Thesis - After Conditioned Room (NL)



Wat is uw 3-cijferige nummer?

Geef aan in hoeverre u het eens bent met de volgende stellingen.

	1. Volledig mee oneens (1)	2. (2)	3. (3)	4. (4)	5. Volledig mee eens (5)
De Kamer was netjes (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De kamer was rommelig (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Lees elk van de volgende uitspraken en bepaal in hoeverre u het ermee eens bent op basis van uw houding, overtuigingen en ervaringen. Het is belangrijk dat u zich realiseert dat er geen "goede" of "foute" antwoorden op deze vragen zijn. Mensen zijn verschillend en we zijn geïnteresseerd in hoe u zich voelt. Gelieve te reageren volgens de volgende 6-puntsschaal:

Ik heb graag
een plek voor
alles en alles
op zijn plaats.

(4)

Ik ben graag
spontaan. (5)

Ik vind dat een
goed geordend
leven met
regelmatige
uren mijn
leven
vervelend
maakt (6)

Ik hou niet van
situaties die
onzeker zijn.

(7)

Ik haat het om
mijn plannen
op het laatste
moment te
wijzigen. (8)

Ik haat het om
bij mensen te
zijn die
onvoorspelbaar
zijn. (9)

Ik merk dat
een consistente
routine me in
staat stelt meer
van het leven
te genieten.
(10)

Ik geniet van
de opwinding
om in
onvoorspelbare
situaties te
verkeren. (11)

Ik voel me
ongemakkelijk
als de regels in
een situatie
niet duidelijk
zijn. (12)