

**STAY IN YOUR TIME-LANE: HOW THINKING DURING A STATE OF
BOREDOM TENDS TO STAY IN EITHER THE PAST, PRESENT, OR
FUTURE**

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ABSTRACT

Stay in Your Time-Lane: How Thinking During a State of Boredom Tends to Stay in Either the Past, Present, or Future

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Boredom, as a subject in psychological research, is a drastically under-researched topic. This preliminary investigation examined a person's thoughts while a person is in a bored state, how these thoughts are related to each other, and how responses varied depending on individual differences in the frequency of boredom. To begin to understand responses to boredom, we observed and surveyed undergraduate college students randomly assigned to two types of boredom-eliciting conditions. For twenty minutes, participants watched a video that induces a state of boredom or they were alone in a room. Their actions were recorded and coded during this time, and they self-reported their thoughts on a survey after the boredom elicitation. Preliminary results showed that participants thought about present topics more than topics in the past or future. Participants also tended to think about topics in either the past, present, or future, and not venture into other topics. These preliminary results are a step forward for boredom research, and further research should focus on different age and demographic groups to find various coping mechanisms with boredom.

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CHAPTER I

INTRODUCTION

Boredom, as a subject in psychological research, is a drastically under-researched topic and there is not much precedent for the subject researched. Studies which have been performed on the topic focus on the negative outcomes associated with people who are bored more frequently. Very little research has been done on people's thoughts while bored or on differences in how people respond to boredom. Understanding responses to boredom is critical to the development of interventions to reduce the negative outcomes associated with the experience of frequent boredom. A meta-analysis reviewing studies about boredom from 1926 to 1980 found that published studies over this topic averaged less than one per year (Smith 1981). With the limited amount of studies on the topic there is no consensus on the definition, consequences, or causes of boredom. Throughout this introduction, the various perspectives and studies performed on boredom will be discussed in respect to the topics above.

Definitions of Boredom

A few ways that researchers have attempted to define boredom in the past are “the aversive experience of wanting, but being unable, to engage in satisfying activity”, “a restless, irritable feeling that the subject's current activity or situation holds no appeal”, or simply as “a state that monitors and regulates our behavior” (Eastwood, Frischen, Fenske, & Smilek, 2012; Barbalet, 1999; Elpidorou, 2014). Other studies attempt to define boredom through psychodynamic, existential, arousal, and cognitive theories (Eastwood, Frischen, Fenske, & Smilek, 2012). Alternatively boredom has been defined as feeling a lack of life meaning and purpose (Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009). For the purposes of this

study, we will define boredom as a restless and irritable feeling that the person's current activity or situation holds no appeal and that there is a need to find something interesting (Barbalet, 1999).

Causes of Boredom

Just as there is no consensus on the definition of boredom, there is no consensus on what causes boredom. Some, like Smith (1981) in their meta-analysis of psychological and psychiatric studies, believe that an inability to engage one's attention is the cause of boredom. This review of studies of boredom up to 1980 found that stimulus factors such as repetitiousness, lack of novelty, and monotony had been found to generate boredom (Smith, 1981). Similarly, Eastwood, Frischen, Fenske, and Smilek (2012) proposed that boredom is the aversive state that occurs when people are not able to successfully engage attention with internal thoughts and feelings or external environmental stimuli. For others, an absence of meaning in an activity or circumstance has also been hypothesized as the cause of boredom.

There is also the hypothesis that an inability to understand one's own emotions may contribute to boredom. Even though a person in a bored state often complains about the external world's lack of interest, findings suggest it may be the person's inability to consciously access and understand their emotions (Eastwood et al., 2007). Participants, through self-report scales, showed that the bored individual is unaware of emotions and more focused on their environment (Eastwood, Cavaliere, Fahlman, & Eastwood, 2007). In several studies, participants' perception that their life had meaning was shown to be associated with boredom and predicted changes in boredom across time (Fahlman et al. 2009).

The present study extends these past theories regarding boredom by assessing the thoughts that occur when people are bored to determine if there is a pattern of engagement with thoughts, feelings, or the external environment, that predicts successfully resolving boredom.

Consequences of Boredom

The Boredom Proneness Scale is a commonly used scale to measure the tendency of an individual toward experiencing boredom. The 28-item self-report survey was developed by Farmer and Sundberg (1986) and includes items like “I am seldom excited about my work.” High levels of boredom proneness have been associated with greater impulsiveness stemming partly from a person’s attempts to deal with meaninglessness when bored (Moynihan, Igou, & van Tilburg, 2017). High boredom-prone individuals also perform poorly on measures of sustained attention and have increased symptoms of attention deficit hyperactivity disorder (ADHD) and depression (Malkovsky, Merrifield, Goldberg, & Danckert, 2012). Individuals with higher boredom-proneness have been characterized as apathetic or agitated, where the individual is motivated to engage in meaningful activities but attempts to do so fail to satisfy (Malkovsky et al., 2012). The Boredom Proneness Scale has been used to correlate different disorders and tendencies such as ADHD and depression in subjects for the past twenty years.

The tendency to experience boredom has been proposed as a personality trait related to addictive behaviors and other variables such as depression or the perception of environmental reward (Martinez-Vispo, Senra, Lopez-Duran, Fernandez del Rio, & Becona, 2019; Fahlman et al, 2009; Lee & Zelman, 2019; Danckert & Merrifield, 2016). Research on marijuana motives among adolescents and emerging adults using a predetermined set of motives showed the most frequently reported reasons included enjoyment/fun, conformity, experimentation, social enhancement, boredom, and relaxation (Lee, Neighbors, & Woods, 2007). Among motives for

smoking, boredom relief is one of the most reported by smokers (Martinez-Vispo et al., 2019). Boredom susceptibility, as tested in the study by Martinez-Vispo et al. (2019), showed to be a significant predictor of smoking outcomes in men at the 6- and 12-month follow up after they had pledged to quit smoking. Multiple studies have also implicated boredom as an underlying cause for relapse in substance use disorder (Smolkin, 2018). In fact, 77.5% of one participant sample identified boredom as a trigger for relapse during substance use disorder recovery (Smolkin, 2018).

Recent evidence suggests that when people are in a bored state, they are motivated to seek out any experience, even a negative one (Bench & Lench, 2018). This is consistent with findings from an experiment performed by Havermans, Vancleef, Kalamatianos, & Nederkoorn (2015) which tested whether boredom motivates participants to eat to escape boredom. Two parallel experiments were used to test this hypothesis, one which used chocolate and the other which used self-administering electrocutaneous stimuli or shocks. Through both experiments, it was found that participants ate more chocolate when bored and would more readily self-administer electrical shocks when bored. In terms of obesity, participants who were obese were observed as eating more than participants who were not obese when put in a bored state (Abramson & Stinson, 1977). Boredom motivates people to escape monotony as people are shown to self-administer electrical shock or eat as a way out (Havermans et al. 2015).

In a similar study participants were asked to watch a monotonous, sad or neutral film fragment during which they could self-administer electric shocks (Nederkoorn, Vancleef, Wilkenhoner, Claes, & Havermans, 2016). Participants in the boredom condition self-administered more shocks and with higher intensity compared to both the neutral and sadness condition. In another study, participants preferred to administer electric shocks to themselves

instead of being alone with their thoughts (Wilson, Reinhard, Westgate, Gilbert, Ellerbeck, Hahn, Shaked, et al., 2014).

Although boredom has mostly been researched in correlation with addictive behaviors or depression and ADHD, the view that boredom is entirely negative should be rejected (Elpidorou 2014; Van Tilburg, W., & Igou, 2017; Mann & Cadman, 2014). Boredom can also be understood as a state which monitors and regulates our behavior, and motivates us to engage in situations that are perceived as fulfilling or meaningful (Elpidorou 2014). Boredom, characterized by a search for meaning, has been shown to promote prosocial intentions, in particular when the corresponding behavior was seen as highly meaningful (Van Tilburg et al., 2017). Finally, boring activities are related to an increase in creativity, specifically boring reading activities lead to more creativity compared to boring written activities (Mann, & Cadman, 2014). Thus one important unresolved question, which is addressed in this investigation, is what people are doing when bored that results in dysfunctional or functional outcomes.

The Current Study

Up to this point, there have been no investigations on the relationships of thoughts while a person is in a bored state. To address this important gap, the current study assessed which topics subjects' think about most during this bored state as well as when these topics occur. Understanding how thoughts relate to the frequency of boredom experienced, could be instrumental in helping people cope with disorders like depression, substance use disorder or smoking, in ways that have never been explored before.

CHAPTER II

METHODS

The purpose of this study was to determine how people respond to boredom. In this study, undergraduate students were asked to either watch a video or sit in a room for twenty minutes. They then completed a second survey about their thoughts during this period, as well as the Boredom Proneness Scale.

Participants

A total of 95 undergraduate students currently enrolled in an introductory psychology course were recruited for this exploratory study. Recruitment of participants was done through an online website where participants received course credit for psychology classes. For analysis, five participants were excluded due to incomplete responses on the survey and one was excluded due to experimenter error during the study. Therefore, the total analysis included 89 participants (61 female; 28 male) ranging in age from 18 to 25 years old.

Procedures and Materials

The first survey participants took was the big five personality. This survey was included, in part, to disguise the true intent of the study to assess responses to boredom. The big five personality inventory tests agreeableness, extroversion, neuroticism, openness to experience, and conscientiousness in a person with specific questions which target each personality. For example the question “I am someone who values art and beauty” targets openness to experience, whereas the question “I am someone who is efficient, and gets things done” is geared towards conscientiousness. Twelve questions were asked for each of the five personalities in a random

order for a total of 60 questions. Participants responded to each item on a scale from 1 (Strongly disagree) to 7 (Strongly agree).

The participant was then either asked to wait in the room while the experimenter gathered materials or to watch a video of two men folding laundry with no sound. Both conditions were intended to elicit the state of boredom for twenty minutes. Participants in the video condition were allowed to click to the next part of the survey after twenty minutes without the experimenter returning to the room, while participants in the no video condition were stopped at the end of the twenty minutes by the researcher with the second survey.

The second survey started with an emotion check which included 24 emotions with five key emotions being boredom, apathy, anger, calmness, and dullness. Next a suspicion check was included to gauge how much the participants suspected they were left alone to induce boredom. The participant was then asked to describe what they thought about for 1) the entire time, 2) the first ten minutes, 3) the second ten minutes. They were then asked to describe the topic they thought about the most and which objects in the room that may have stood out to them. The participant was then asked to check any number of 15 items that they thought about during the 20 minutes. These 15 items fell into 5 categories: social, past, emotional, present, and future. Three items were included in each of the five categories. Next, three sliding scales were included which asked what percent of the time participants thought about various topics during the 20 minutes. The first sliding scale asked the participant to split up the percentages between past, present and future. The second scale asked about social concerns, academic/career concerns, health concerns, and other. The final scale asked the participant to think about the percentages they thought about successes, failures, obstacles/challenges, or concerns/worries. After this, the Boredom Proneness Scale was included to test the participants' tendency towards a state of

boredom. The survey ended with demographic questions which included the participant's age, gender, and racial/ethnic background. After the participant finished this final survey the participant was debriefed to explain the significance of this experiment and research on boredom. The debriefing also explained some of the causes and outcomes that a person who is bored more frequently can have.

CHAPTER III

RESULTS

Preliminary Results

To begin the analysis, the means of the 24 emotions used in the emotion check were examined to find if the boredom manipulation was successful. Participants rated boredom ($M=5.42$, $SD=1.76$) and calmness ($M=4.76$, $SD=1.73$) as the most strongly felt emotions after the twenty minutes. Next, a Pearson's correlation was run between the two conditions and the boredom ratings to assess if there was a difference between the conditions. The analysis showed that the condition was positively correlated with the participants' ratings of boredom, $r(87) = .406$, $p < .01$.

Past/Present/Future Correlations

A frequencies analysis was run through SPSS for the list of topics specifically in the past, present, and future categories to assess how often people think about these categories. This analysis showed that the frequency of topics which fell under the present category were checked more often than topics in the other categories. "Assignments due today" (70%), "Tasks non-school related that need to be accomplished today" (66%), and "Tests you need to study for today" (57%) were all included in the present category. On the lower end, one of the least checked topics was in the future categories, "Places you want to visit after college" (0.02%).

A Pearson's Correlation and two-tailed test were used to assess the relationship between how often participants thought about topics in the past, present, and future topics. "Past conversations" had small positive correlations with "Past friendships", $r(87) = .228$, $p < .05$. In the future category, "Schooling after college" had a moderate positive correlation with "Jobs

after college”, $r(87) = .511, p < .01$. The present category had the most correlations:

“Assignments due today” had a small correlation with “Tests you need to study for today”, $r(87) = .236, p < .05$, and “Past assignments”, $r(87) = .208, p < .05$. Finally, “Tests you need to study for today” was also positively correlated with “Past Assignments”, $r(87) = .296, p < .01$.

Sum of Past/Present/Future Correlations

To show if there was a relationship between the following items on the survey, a Pearson’s correlation was run between the sum of the three events on the topics list that reflected events in the past, present or future and the percentages that participants said they thought about these individual topics. The sum of the past topics and the percentage participants rated they thought about the past showed a moderately strong correlation, $r(87) = .568, p < .01$. The sum of the past topics also showed a negative correlation with the percentage that participants rated they thought about the present, $r(87) = -.306, p < .01$. The sum of the present topics showed a negative correlation with the percentage participants rated how often they thought about the present, $r(87) = -.292, p < .01$. The sum of the present topics also showed a positive correlation with the percentage participants rated how often they thought about the future, $r(87) = .328, p < .01$. The sum of future topics did not show any significant relationships with any of the percentages.

Another Pearson Correlation was run between the individual nine topics that made up the past, present and future categories of the topic list and the percentages participants said they thought about these individual topics. The topic “Past Conversation” showed a significant correlation with the percentages participants said they thought about the past, $r(87) = .442, p < .01$. The topic “Past Friendships” showed a moderate positive correlation with the percentage participants said they thought about the past, $r(87) = .524, p < .01$, and a small negative

correlation with the percentage participants said they thought about the present, $r(87) = -.290, p < .01$. The topic “Tests you need to study for today” had a small positive correlation with the percentage participants said they thought about the future, $r(87) = .220, p < .05$. “Past assignments” had a small negative correlation with the percentage participants said they thought about the present, $r(87) = -.213, p < .05$. Finally, “Tasks non-school related that need to be accomplished today” had a negative relationship with the percentage participants said they thought about the present, $r(87) = -.270, p < .05$, and a positive relationship with the percentage participants said they thought about the future, $r(87) = .223, p < .05$.

Boredom Proneness Scale

Another important measure for this study is the boredom proneness scale which measures how prone people are to experience boredom. A Pearson’s correlation and two-tailed test were used to look at the relationship between this measure and the past, present, and future topics focused on throughout this results section. This should show whether people who are more or less bored more frequently tend to think about either the past, present, or future. Unfortunately there were no significant correlations between any of the topics in these categories and the boredom proneness scale.

Gender and Age Relations

Finally a Pearson’s correlation was run to find the relation between the genders and ages of participants and the topics in the past, present, and future categories. There were no topics that were significantly related to the ages of the participants, but there were two topics significantly related to genders. “Assignments due today” had a small positive correlation with the gender of participants, $r(87) = .274, p < .01$. “Places you want to visit after college” was negatively correlated with gender, $r(87) = -.224, p < .05$.

CHAPTER IV

DISCUSSION

Implications

Again as this was an exploratory study there was no true hypothesis, but participants' thoughts and emotions while in a bored state were examined. To begin looking at how participants think while in a bored state, we must determine the participants were in fact in a bored state. The emotion check showed that boredom was the strongest felt emotion compared to 23 other emotions. Therefore, the manipulations were successful in producing a state of boredom. When comparing the two conditions, the no-video and video conditions, to the boredom emotion there was a positive correlation ($r=0.406$, $p<0.01$). This shows that the video condition tended to produce a higher feeling of boredom on the scale of 1 to 7, as the no-video condition was coded as a "1" and the video condition a "2" in SPSS.

The correlations between the past, present, and future topics also showed some interesting relationships and provided some insight into the minds of our participants during their twenty minutes of boredom. The frequency statistics showed that the three topics in the present category, "Assignments due today", "Tasks non-school related that need to be accomplished today", and "Tests you need to study for today", were the most frequently checked out of the 15. Therefore, people tend to think about the present or the near future while they are in a bored state. It was also shown that people are least likely to think about future topics compared to the past and present during this bored state, as these topics were the least frequently checked. Further analysis of the past, present and future topics with a Pearson's Correlation showed that topics in that category were generally positively correlated with other topics within that same

category. The two past topics, “Past conversations” and “Past friendships”, were positively correlated with one another. Therefore, when a participant thought about “Past conversations” they also tended to think about “Past friendships”. This was also true with the relationship between “Schooling after college” and “Jobs after college”, and the relationship between “Assignments due today” and “Tests you need to study for today”. The present topics did show some variation compared to the past and present, as “Assignments due today” and “Tests you need to study for today” were related to “Past Assignments”. Generally when participants were bored, they thought about topics in either the past, present or future rather than varying between these categories.

There were some unusual findings when analyzing the relationship between the sum of the topics in the past, present, and future categories and the percentage participants rated how often they thought about each of these categories. First, the participants rated they were thinking about the past at a higher percentage when they also checked more topics in the past category. The Pearson's correlation also showed that when participants checked more present topics, they rated that they thought about the present less compared to the past and future. Finally participants who checked more topics in the present category rated a higher percentage of thinking about the future. This finding was consistent when checking the correlation between the individual topics and the percentages participants rated they thought about the past, present or future. When participants checked “Tests you need to study for today”, they also rated that they had been thinking about the future during the twenty minutes. Similarly, participants who checked “Tasks non-school related that need to be accomplished today” rated they were thinking about the future and not the present. This shows that some clarification may be needed in future studies to define the difference between past, present, and future.

Unfortunately, when looking at how the boredom proneness scale and age were related to the past, present or future there were no significant findings. As far as the relationship between gender and the topics in past, present, and future, this showed an interesting correlation. Participants who checked “Assignments due today” were more likely to be female, whereas participants who checked “Places you want to visit after college” were more likely to be male. Overall, this study resulted in many interesting correlations for an exploratory study, but moving forward the psychology community should take into account the limitations of this study.

Limitations

To begin, our manipulation of boredom was a video which was originally about three minutes and 50 seconds. To make the video condition and the no-video condition the same lengths, the video had to be looped about 5.5 times. For some participants this caused confusion when the video started over again for the third or fourth time, and they left the room to come and ask us if they needed to do something. This affected our manipulation of the video group as they left the room where the video was and talked to the research participant for 20-30 seconds. Although the participants were obviously confused by the manipulation, the participants in this condition still rated feeling bored stronger than the participants in the no-video condition.

This room was also not void of outside influences, as grad students often held office hours in adjoining rooms and construction work was a common occurrence both inside and outside the building. Although the research assistants attempted to limit the external stimuli the participants were exposed to, there were obviously some noises that were unavoidable which could have influenced how bored the participant was.

Finally, this study was conducted on mostly 18-20 year old college students, and as such the questions were specifically written for this group of participants. When considering external

validity, this study is an important beginning for research on thoughts while people are in a bored state but should not be considered applicable to all groups of people.

Future Directions

Future studies should focus on how to make this study have more external validity, to assist people in coping with boredom. Research should focus on different age groups, different racial/ethnic groups, different genders and how these groups experience boredom differently. This preliminary study used questions tailored to college students, for example “Tests you need to study for today” or “Assignments due today”. When attempting to find how these experiences may be different, the questions will have to change according to the group of participants.

Ultimately this study showed that there are relationships between what topics people think about while they are in a bored state. Showing this relationship, even minimal, is an important step in moving forward with boredom research. Understanding how a person thinks when they are in a bored state could be the start of helping them cope with those thought processes, especially concerning groups who have high boredom proneness scores related to disorders.

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