WHY PEOPLE ARE RELUCTANT TO TEMPT FATE

Gilovich & Risen (2008)
Replication of Study 6

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Agenda

1. Objectives
2. Original Study and Replication
3. Extension Study and Final Results
4. Conclusion

1. Objectives

1. Replicate one of the experimental studies proposed by Risen and Gilovich in the paper ***Why People are Reluctant to Tempt Fate (2008)*** about the underlying cause of the "tempting fate" behavior.

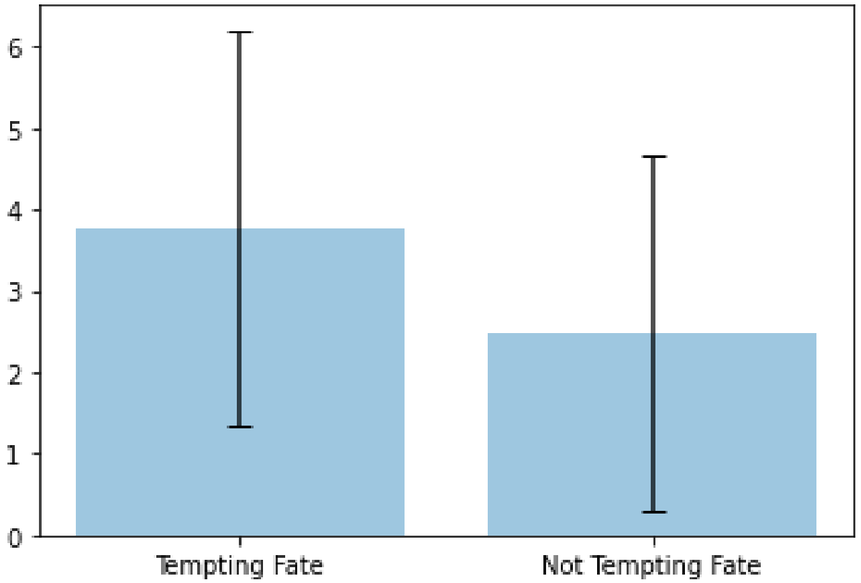
2. Propose and develop a methodological expansion facing the limitations of the method from the original study.

2. Original Study and Replication: Scenario

Study 2 Scenario:

You are a student in a large classroom.
The teacher introduces some relevant ideas from the reading that was assigned for today.
You ***either read (Not Tempting Fate) / did not read (Tempting Fate)*** *for the class. The teacher starts asking questions to the class related to the paper and after some unanswered questions,* ***the teacher decides he will be calling a name randomly from the class.***

From 1 to 10, how likely you think it is that you will be the one called on by the teacher?



Study 2 Results
Chart created by us from the results that were presented in the paper. The error bars represent standard deviation.
$t(58)=2.18$, $p < 0.05$

What does it mean to tempt fate?

To tempt fate is “to do something that is risky or dangerous” (McKean, 2005; as cited in Gilovich & Risen, 2018). These actions are averse because of the possible negative outcomes that might follow them.

Under the magical thinking category.

Magical thinking is defined as the belief that certain actions can influence objects or events when there is no empirical causal connection between them. (Henslin, 1967; Zusne & Jones, 1989) cited by Risen(2015)

Hypothesis from the original study

2 concurrent systems in the brain:

- System 1: fast, automatic
- System 2: slow, analytical

The authors hypothesized that the slow system (2) processes can act to suppress irrational aversion to tempting fate, and thus that under a cognitive load that occupies the slow (2) system's resources, the effect of tempting fate on perceived likelihood of bad luck would be magnified.
Gilovich & Risen (2008)

Research question

Is there an effect on the perceived likelihood of a negative outcome when people are subjected to both **cognitive load (CL)** and **tempting fate (TF)** conditions?

	Cognitive Load Counting while reading (CL)	No cognitive load Just reading (!CL)
Did not read for the class (TF)	TF&CL	TF&!CL
Did read for the class (!TF)	!TF&CL	!TF&!CL

Hypothesis

Replication H0:

There is **no** difference on the perceived likelihood of a negative outcome when presented with TF&CL condition vs TF&!CL.

Replication H1:

There is **a significant** difference on the perceived likelihood of a negative outcome when presented with TF&CL condition vs TF&!CL.

	Cognitive Load Counting while reading (CL)	No cognitive load Just reading (!CL)
Did not read for the class (TF)	TF&CL	TF&!CL
Did read for the class (!TF)	!TF&CL	!TF&!CL

Variables

Independent: Tempting Fate, Cognitive Load

Dependent: Likelihood

METHOD FROM REPLICATION

Sampling, setting and materials

CL: count backwards by three starting with 564

In person: **40 participants**

Convenient sampling: **Close people available**

At the **University Lab Room** (*at the beginning*)

Control of loud noises and disturbance

Physical format: **pen and paper**

Instructions explained in person

METHOD FROM REPLICATION

Procedure

Replication & Extension

Participants are assigned to 1 of the 4 conditions

Independent variables

Dependent variable

4 different conditions

1 different group per condition → Between groups Factorial design

	CL: Memorize/ count	NCL: Just read
Tempting fate: Did not read	Likelihood of a negative outcome	Likelihood of a negative outcome
No tempting fate: Read	Likelihood of a negative outcome	Likelihood of a negative outcome

STEP BY STEP

1) **Consent** is given by the participant + a form asking demographic information
2) Participant is assigned to one of the four conditions.
3) Instructions are given by the researcher according to the participant's conditions

- Read the situation (TF/!TF)
- + Count backwards by 3's starting from 564 while reading.

4) Participant is asked about the likeability of being called using a likert scale
5) Participant is asked about **the number they ended up with if under CL**
6) Participant is debriefed

Replication Results

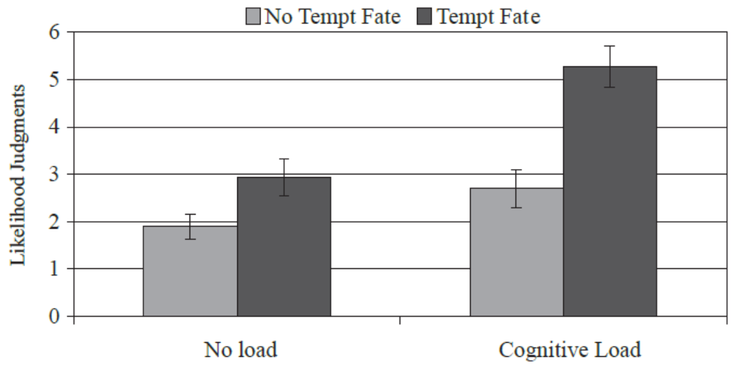


Figure 4. Subjective likelihood judgments in Study 6, following a story in which participants tempted fate or did not, depending on whether participants responded under cognitive load. Error bars represent standard errors.

Study 6: 2X2 ANOVA

Tempting Fate: $F(1, 116) = 22.88$, $p < .001$

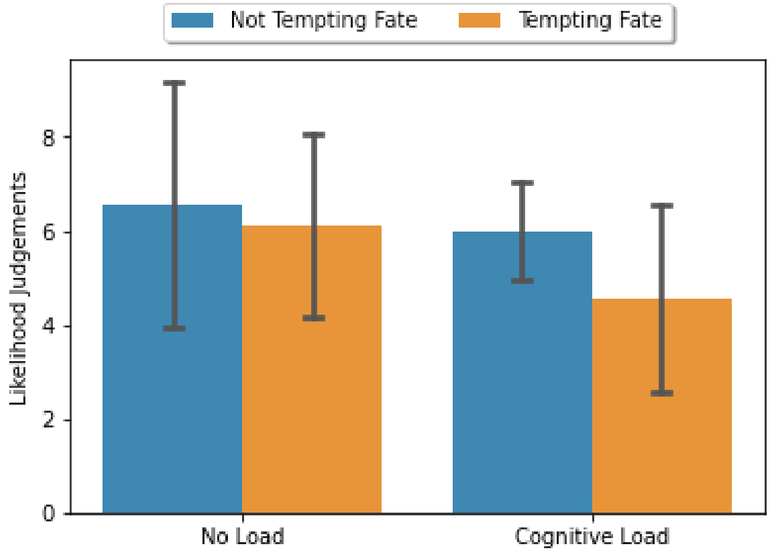
Cognitive Load: $F(1, 116) = 17.34$, $p < .001$

Interaction: $F(1, 116) = 4.15$, $p < .05$

For **under load**:

N = 58, t(58) = 4.38, **p < .001**, d = 1.15

- Tempting Fate: **M = 5.27, SD = 2.36**
- Not Tempting Fate: **M = 2.70, SD = 2.17**



Our replication: 2x2 ANOVA

Tempting Fate: F(1, 36) = 1.79, p = 0.19

Cognitive Load: F(1, 36) = 2.24, p = 0.14

Interaction: F(1, 36) = 0.50, p = 0.48

For **under load**:

N = 18, t(18) = 1.8, p = 0.09

- Tempting Fate: **M = 4.55, SD = 2.12**
- Not Tempting Fate: **M = 6.00, SD = 1.12**

No statistical significance in the interaction term.
No statistical significance in the main effects either.
In our case, the error bars represent standard deviations.

3. Extension Study and Final Results

Proposed changes for the extension:

Original method of Cognitive Load is hard to control	→	**Change Cognitive Loading method to Memory**
Need for a larger and more diverse sample	→	**Online Survey**
Measure the interaction between: importance given to the situation and perceived likelihood of being called	→	**Add 2 more questions to the survey**

HYPHOTHESES

Extension H0s:

Original H0

There is **no** difference on the perceived likelihood of a negative outcome when presented with CL&TF condition vs !CL&TF.

Extension H1s:

Original H1

There is **a significant** difference on the perceived likelihood of a negative outcome when presented with CL&TF condition vs !CL&TF.

Measure the interaction between importance given to the situation and perceived likelihood of being called

There is **no correlation** between values of importance or relevance from the task and perceived likelihood of a negative outcome.

There is **a correlation** between values of importance or relevance from the task and perceived likelihood of a negative outcome.

Change Cognitive Loading method to Memory

There is **no statistically significant effect** of cognitive load on the perceived likelihood of a negative outcome.

There is a **statistically significant effect** of cognitive load on the perceived likelihood of a negative outcome.

Variables

Independent:

- Tempting Fate
- Cognitive Load

Dependent:

- Likelihood
- Importance
- Relevance

METHOD COMPARISON

Sampling, setting and materials

Replication

CL: count backwards by three starting with 564

In person: 40 participants

Convenient sampling: Close people available

University Lab Room (At the beginning)

Control of loud noises and disturbance

Physical format: paper

In person: explanation

Extension

CL: show an image pattern beforehand (memory)

Online 200 participants

Convenient sampling: Groups and close people

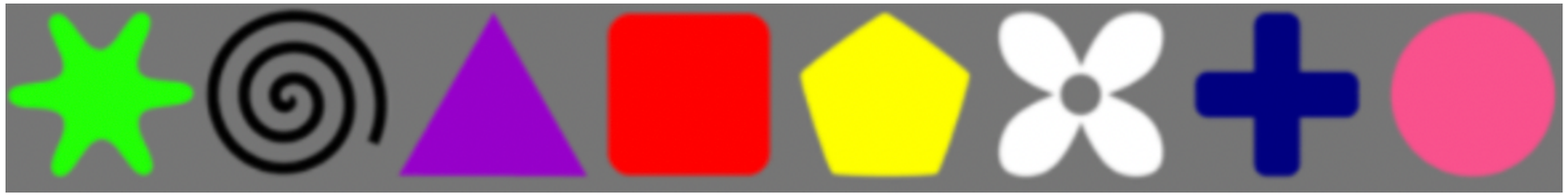
Online environment

No control on external factors

No control on human errors

Online Form: GoogleForms & Psytoolkit

STEP BY STEP



1) Participant is assigned to one of the four conditions.
2) Consent is given by the participant + a form asking for demographic information.
3) Instructions are read by the participant according his/her condition.

- **+ Memorize this pattern, presented previously to the reading if CL.**
- Read the situations (TF/NTF)

4) Participant is asked about the likelihood of being called using a likert scale.

+ 2 New Questions (1-5):

a. **How bad would you feel if you were called on by the professor? (Importance)**
b. **If you were a student in the scenario you just read about, how important would it be for you to answer questions correctly in class? (Relevance)**

5) Participant is asked about the original sequence that was presented if CL (multiple choice)
6) Participant is debriefed

Extension Results

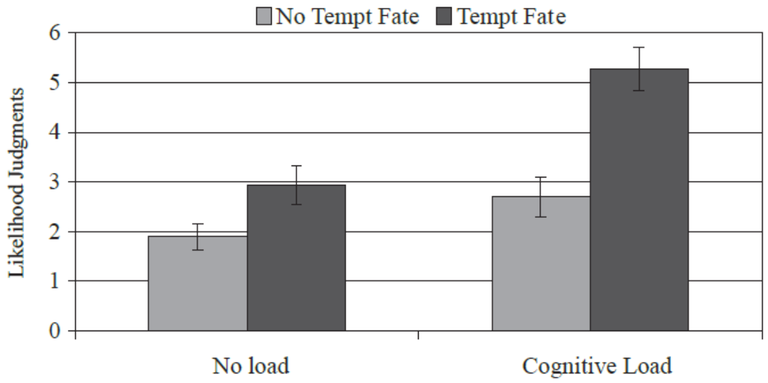


Figure 4. Subjective likelihood judgments in Study 6, following a story in which participants tempted fate or did not, depending on whether participants responded under cognitive load. Error bars represent standard errors.

Study 6: 2X2 ANOVA
Tempting Fate: $F(1, 116) = 22.88$, ***p* < .001**
Cognitive Load: $F(1, 116) = 17.34$, ***p* < .001**
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For **under load**
N = 58, t(58) = 4.38, **p < .001**, d = 1.15

- Tempting Fate: **M = 5.27, SD = 2.36**
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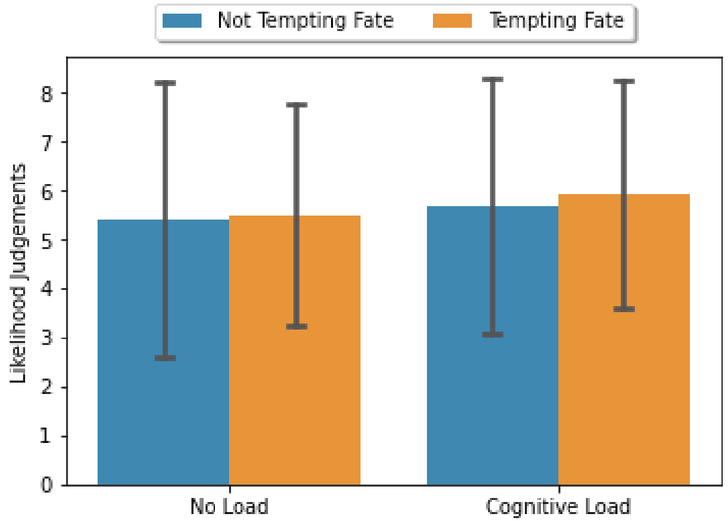


Our replication: 2x2 ANOVA
Tempting Fate: F(1, 200) = 1.01, p = 0.32
Cognitive Load: F(1, 200) = 0.20, p = 0.65
Interaction: F(1, 200) = 0.03, p = 0.86

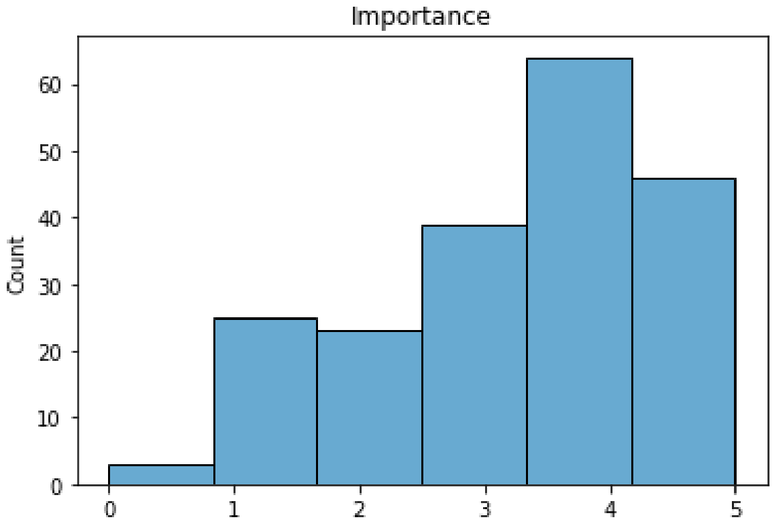
For **under load**:
N = 100, t(100) = -0.44, p = 0.65

- Tempting Fate: **M = 5.92, SD = 2.34**
- Not Tempting Fate: **M = 5.70, SD = 2.62**

No statistical significance in the interaction term.
No statistical significance in the main effects either.

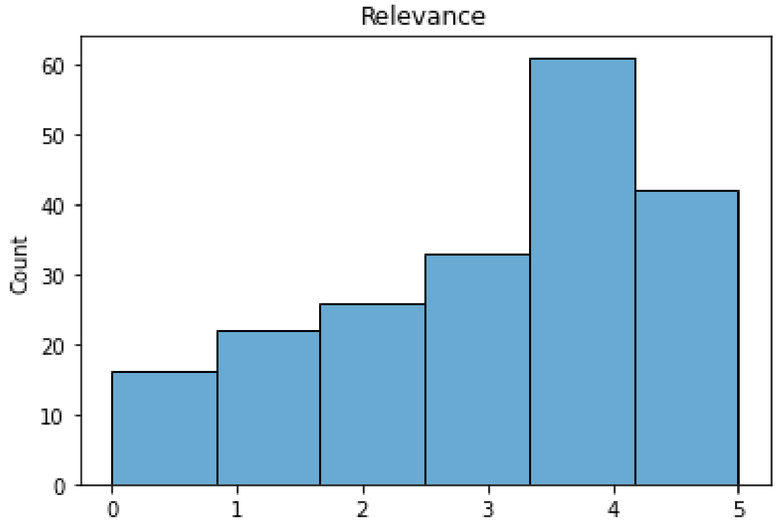
The results for cognitive load, tempting fate are similar to the originals.
In our case, the error bars represent standard deviations.

Extension Results: Importance and Relevance



Importance

How bad would you feel if you were called on by the professor?

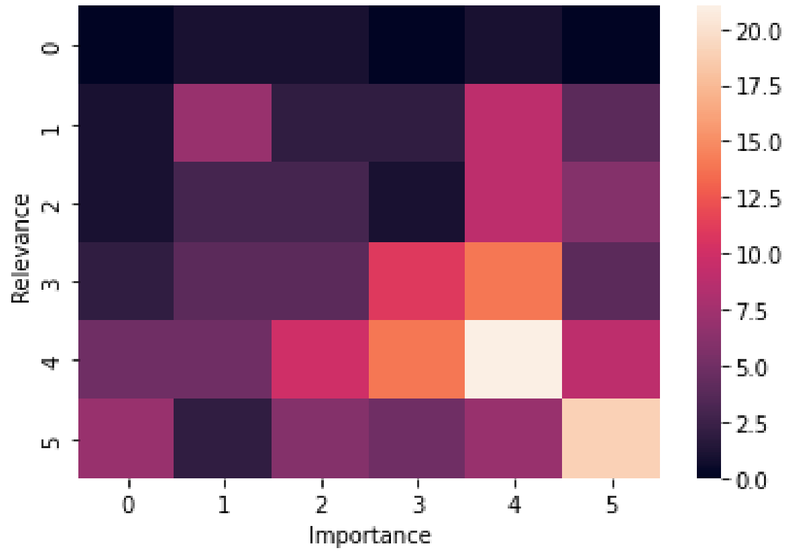


Relevance

If you were a student in the scenario you just read about, how relevant would it be for you to answer questions correctly in class?

Extension Results:
Importance and Relevance, correlation

Very interestingly, importance and relevance are not correlated.

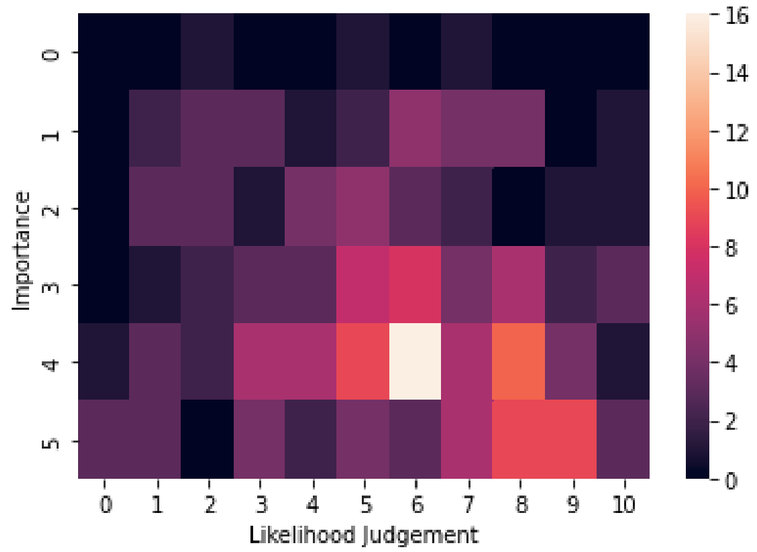


ρ = 0.08

p = 0.29

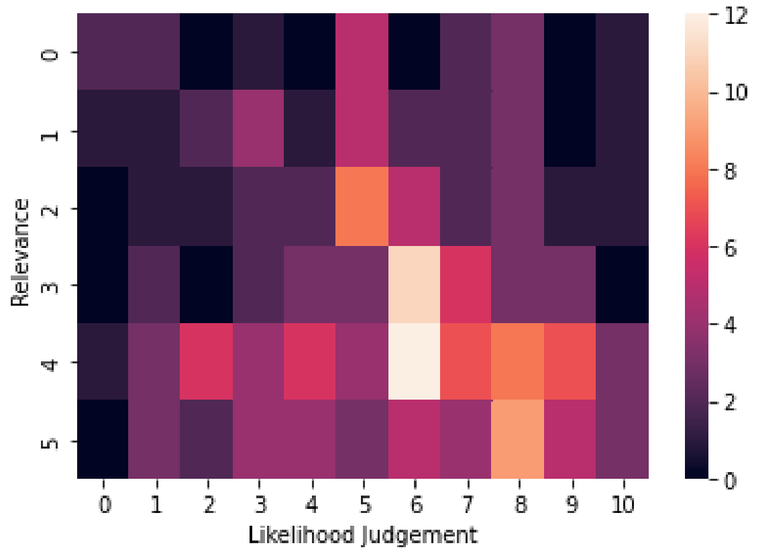
Extension Results:
Importance and Relevance, correlation with response

However, we found both Importance and Relevance to be correlated with Likelihood after running Spearman correlation tests.



ρ = 0.18

p < 0.05 (0.01)

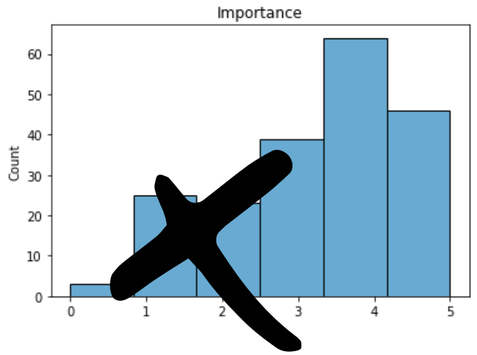


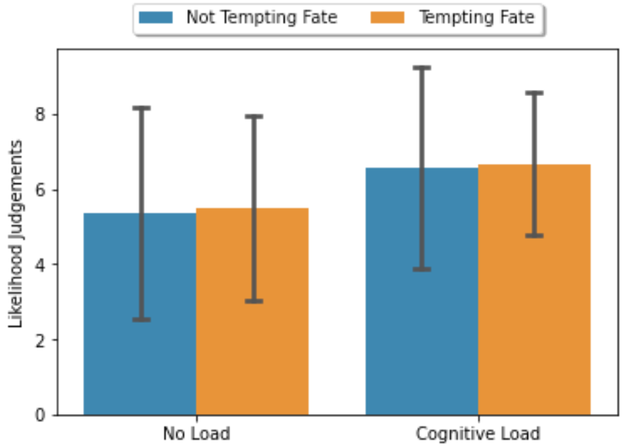
ρ = 0.15

p < 0.05 (0.03)

Extension Results: Importance > 3

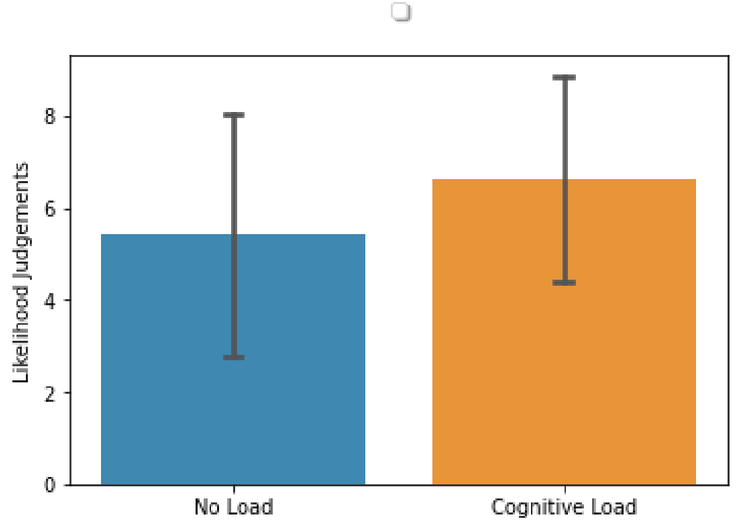
Next, we decided to select only respondents whose answers > 3 to: How bad would you feel if you were called on by the professor? (N=110)





2x2 ANOVA:
Tempting Fate: F(1, 110) = 1.01, p = 0.32
Cognitive Load: F(1, 110) = 5.49, **p < 0.05 (0.02)**
Interaction: F(1, 110) = 0.03, p = 0.86

No statistical significance in the interaction term.
We had statistical significance in the main effect of Cognitive Load, so we ran an independent t-test.

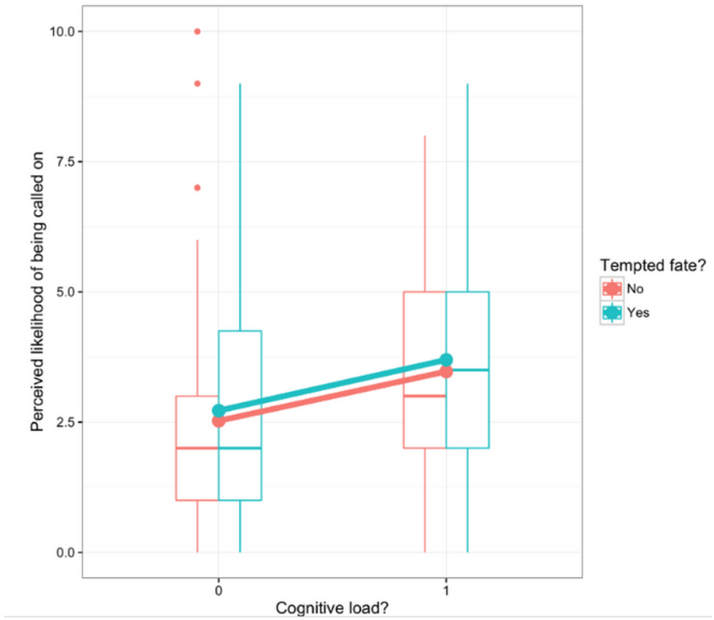


t(110) = 2.41, **p < 0.05 (0.01)**

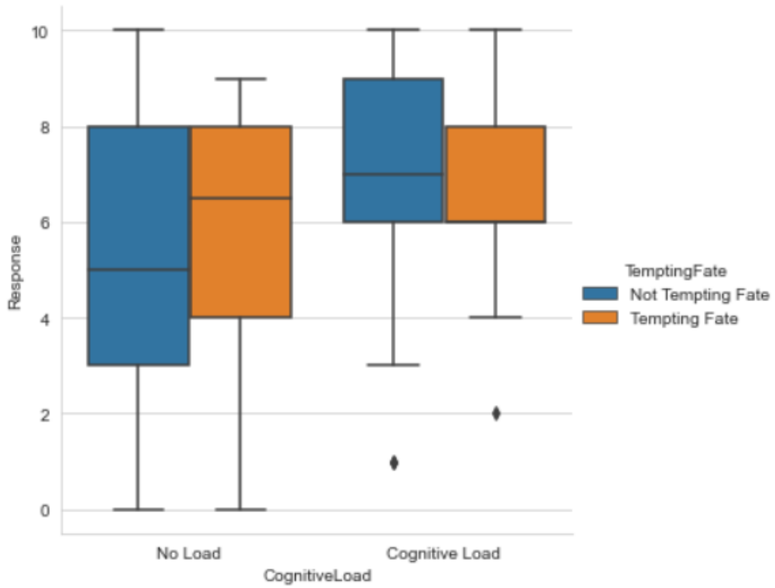
The conclusion is that our cognitive load method worked for respondents who felt bad if they were called on by the professor, regardless of TF condition.

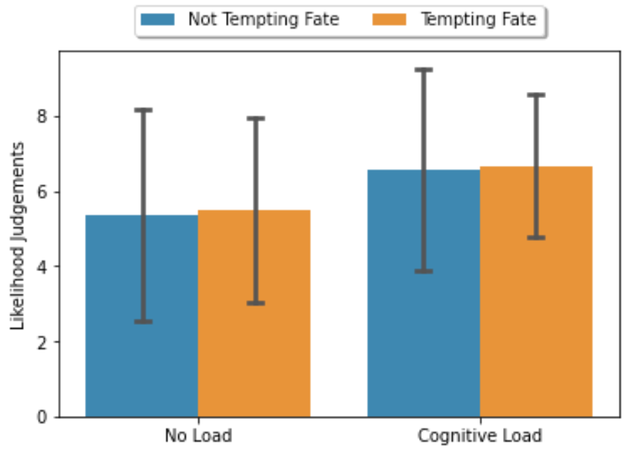
We did not find statistical significance when we tried the same type of analysis for Relevance.

Extension Results: Importance > 3



Previous Replication
Maya Matur (2016)





Our Own Replication
(Importance > 3)

HYPHOTHESES

Extension H0s:

Original H0

There is **no** difference on the perceived likelihood of a negative outcome when presented with CL&TF condition vs !CL&TF.

Extension H1s:

Original H1

There is **a significant** difference on the perceived likelihood of a negative outcome when presented with CL&TF condition vs !CL&TF.

Measure the interaction between importance given to the situation and perceived likelihood of being called

There is **no correlation** between values of importance or relevance from the task and perceived likelihood of a negative outcome.

There is **a correlation** between values of importance or relevance from the task and perceived likelihood of a negative outcome.

Change Cognitive Loading method to Memory

There is **no statistically significant effect** of cognitive load on the perceived likelihood of a negative outcome.

There is a **statistically significant effect** of cognitive load on the perceived likelihood of a negative outcome.

* only for importance > 3

LIMITATIONS

FOR THE FUTURE

LIMITATIONS	FOR THE FUTURE
No control on external factors and situations while in online setting	More in person participants to minimize external errors
CL control method is difficult to control in both scenarios.	Contrast of different types of Cognitive Load
Find a more suitable situation	Different Scenarios for different pools of participants
Verification of situation	Analysis of reading understanding (adding questions)
Asumption about higher responses of likelihood being related to the believe in tempting fate	Ask why they gave a value or another in the likert scale

DISCUSSION

Studies were done by Roy Baumeister cited by Kahneman (2013) show that after being under all variants of voluntary effort **-cognitive/emotional or physical- people are more prone to act under System 1 (fast)**. An insight supported by the extension, since no one punctuated 0 in the likelihood(Response) of being called under CL compared to the !CL condition.
Lower values of likelihood (Response) of being called are around 6 for CLTF condition and in 4 for !CLTF

Response > when CL & when importance > 3 suggests that cognitive load increased the the belief that negative outcomes are more likely to happen **ONLY** when people consider the scenario salient to them. Leading to support the idea that magical beliefs, in this case "Tempting fate" is related to S1 (fast) processing.

DISCUSSION

Based on some experiences while in the replication of people asking more details on the situation about the number of students, for example, touch on a point made by Risen(2015) who says that even though magical beliefs are shared by everyone, **if the person is especially rational these ideas are more likely to be corrected by System2(slow)**, suggesting how correction of magical beliefs is dependent on someone's ability to be rational, and how being reluctant to tempt fate will mainly affect those more irrational.

Responses>3 importance are not just similar to the results from *Risen&Gilovich(2008*), experiments around other magical beliefs such as Karma or immanent justice (Mitchell et al, 2010), showed how perceived deservingness to be punished by life after acting morally incorrectly was significantly stronger under high $t(162)=8.45$, $p<.001$, $d=1.77$, than low cognitive load, $t(162)=5.06$, $p<.001$ $d=1.17$.

4. Conclusions

1

The **situation** of the students is not ideal to measure magical beliefs among people, because it assumes the situation is perceived as risky by everyone, when the extension confirms it is not. Supported by Importance > 3.

2

Cognitive load while in a task, **does seem to interfere** with the capacity of making a rational judgement, or accesing system 2 (slow). Supported by statistical difference when under cognitive load vs. not under cognitive load.

3

Could not reject the original H0 of the paper. People do not perceive a greater likelihood of a negative outcome while they are under cognitive load and their situation tempts fate.

References

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