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Too Tired to Think Outside the Box? An Analysis of Ego Depletion's Effects on Creativity

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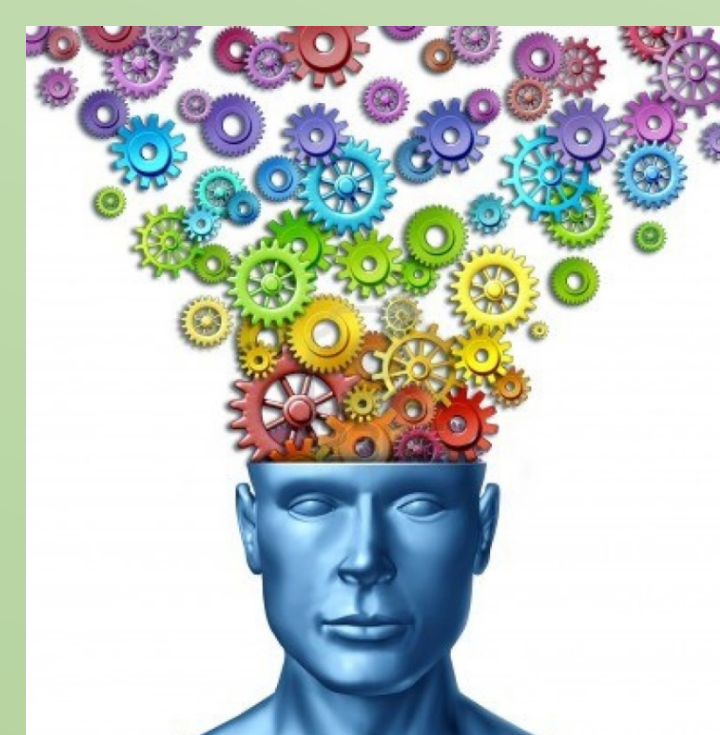
Introduction

Recent research suggests that complex tasks that require self-control to complete, such as strenuous tests or complicated decisions, put a strain on the limited resource known as the ego. The ego is thought to be a kind of mental energy reserve that can be depleted with use. Previous studies have shown that, not only is it possible to deplete the



ego, but this depletion leads to poor performance on various later tasks involving skills such as decision making, cognitive extrapolation, reasoning, and self-control. Two models in particular have gained support

recently: the resource model – involving blood glucose– and the trade-off model – involving distribution of attention.



Because both creativity and the ego are thought to be biologically based and because cognitive flexibility, which has been shown to be highly correlated with creativity, seems to require a fairly high level of processing like other processes on which ego depletion has been shown to have a negative effect, it is reasonable to suggest that ego depletion would cause a decrease in creativity as well.

Method

After completing the informed consent form, participants were given their packet of tasks. They were instructed to complete the packets in order and not to go back to a previous task after beginning the next one. Participants were randomly assigned to either the neutral or ego depletion condition.

Participant Information

No. of participants	184
Mean age (years)	20.17 ± 1.25
No. in neutral group	91
No. in ego-depleted group	93

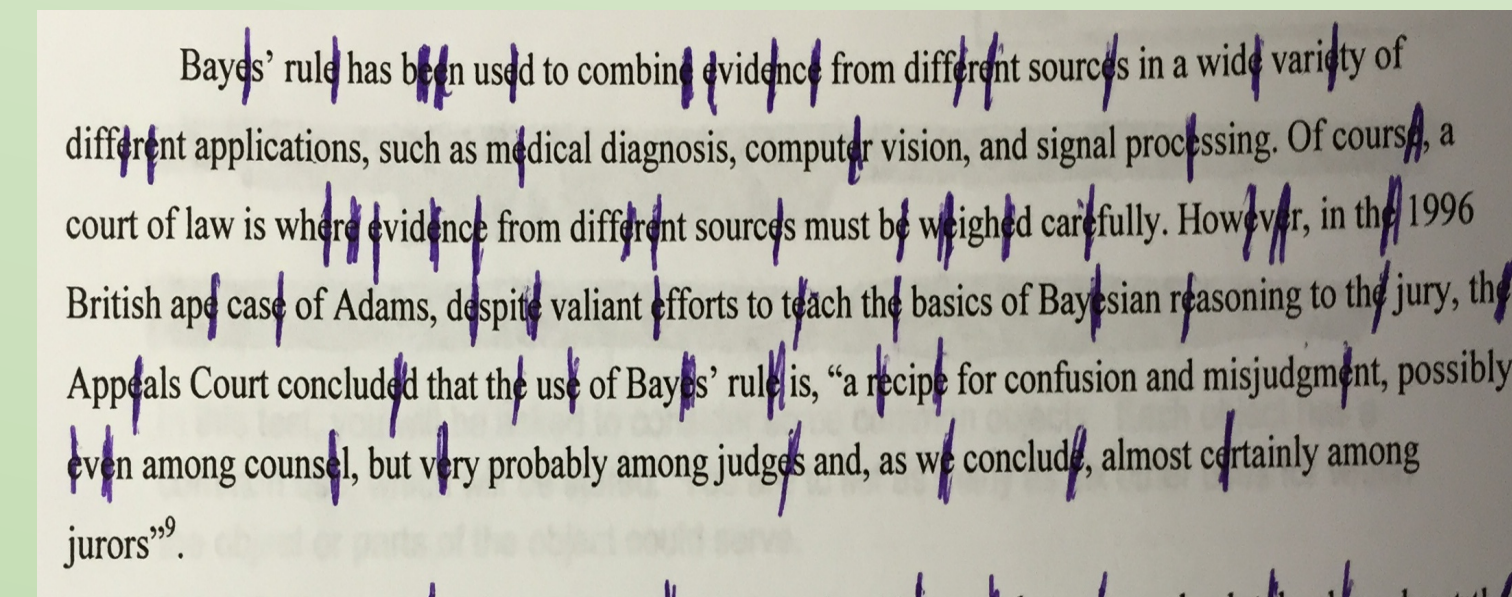
Measures

Psychological Flexibility Questionnaire

Participants completed the Psychological Flexibility Questionnaire (Ben-Itzhak, Bluvstein, & Maor, 2014) to assess baseline cognitive flexibility.

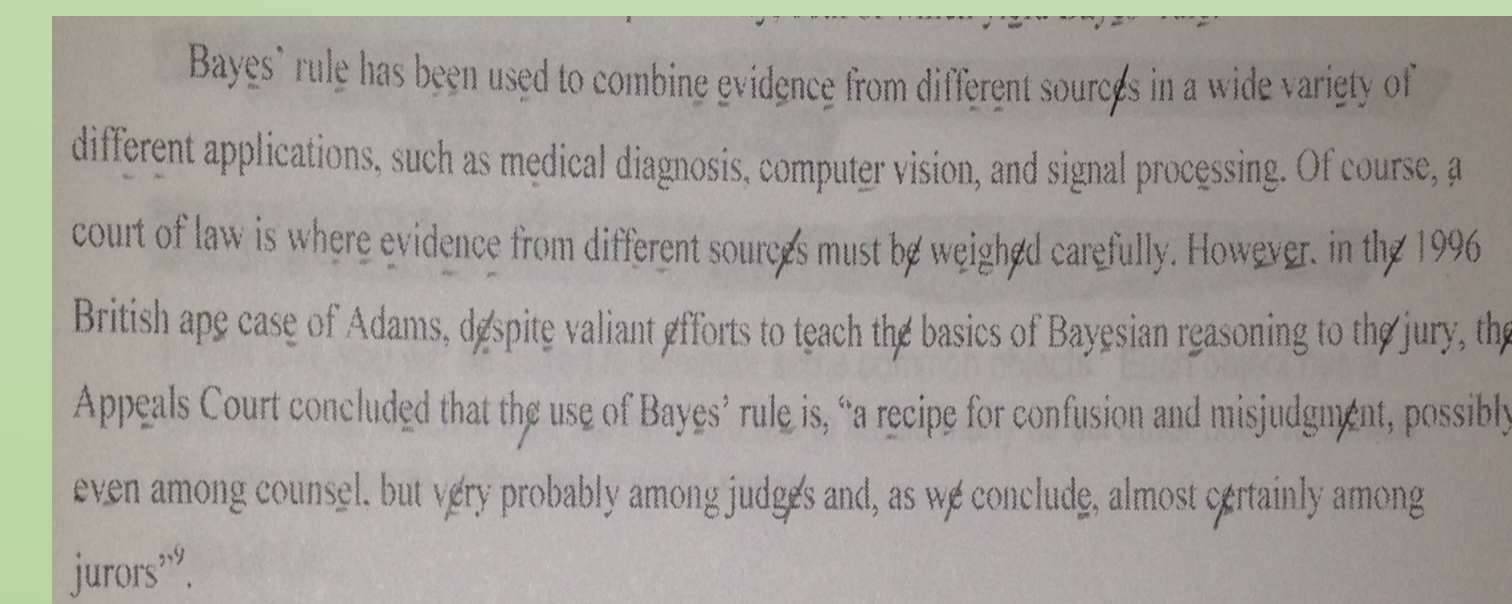
Neutral Task

Directions: Mark through the letter “e” anytime it appears



Ego-Depletion Task

Directions: Mark through the letter “e” anytime it appears unless it is adjacent to another vowel or is only separated from another vowel by one letter



Alternative Uses Task

After completing the neutral or ego depletion task, the Alternative Uses Task gave participants everyday objects such as a pencil and asked them to list as many alternative (different from given use) uses for that object as possible.

List as many as six possible uses for each of the following objects:

1. SHOE (used as footwear)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

Fun Responses

Wooden Pencil:

- determine the gender of a baby

Tire:

- ring for an impoverished giant

Shoe:

- toss downstairs to alarm boyfriend it's time to go

Eyeglasses:

- hand workout (fold and unfold)
- Chew toy for a cockapoo named Benton

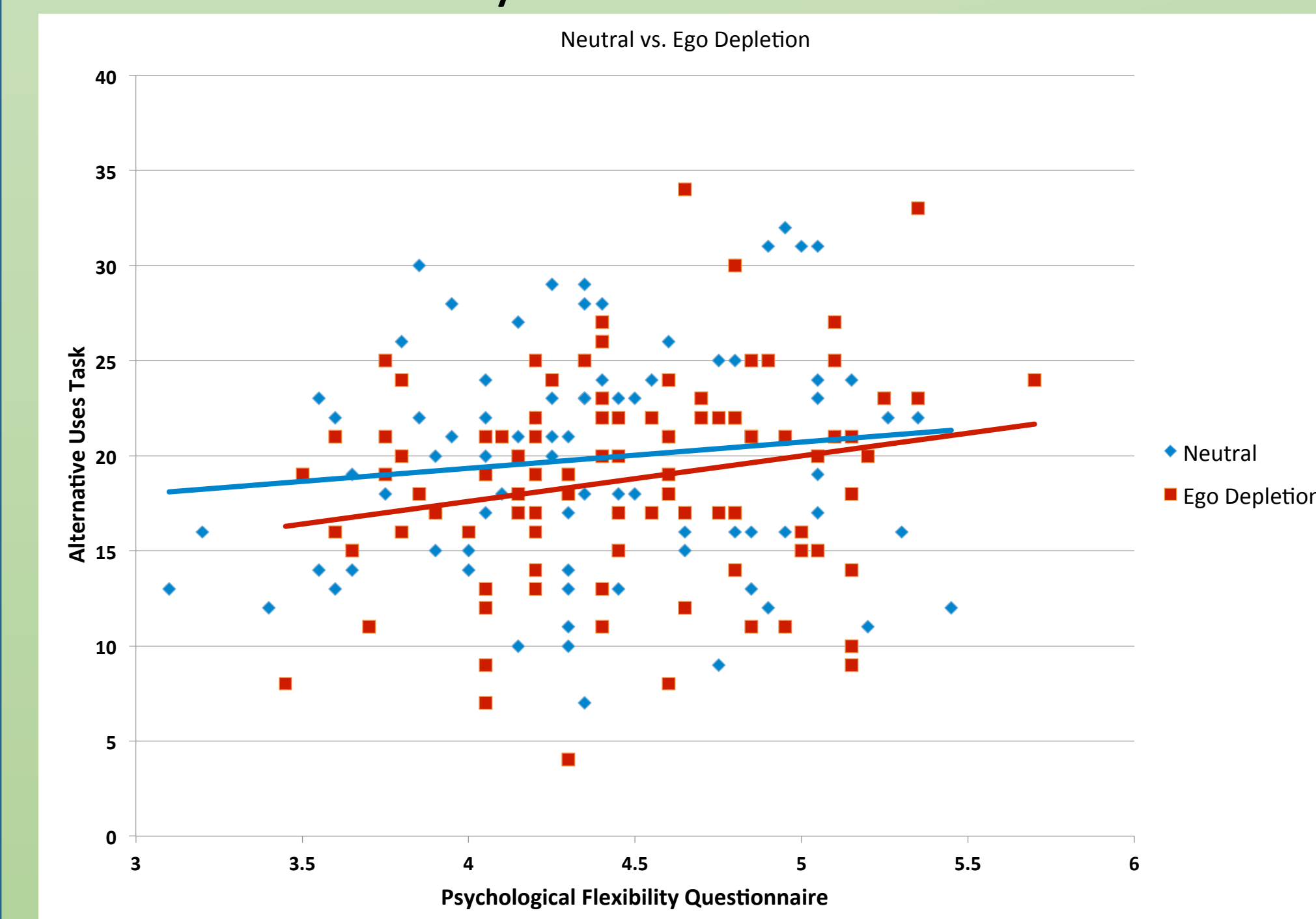
Button:

- drop several like breadcrumbs to make a trail
- surgical reinforcement (It happened to my dog)

Results

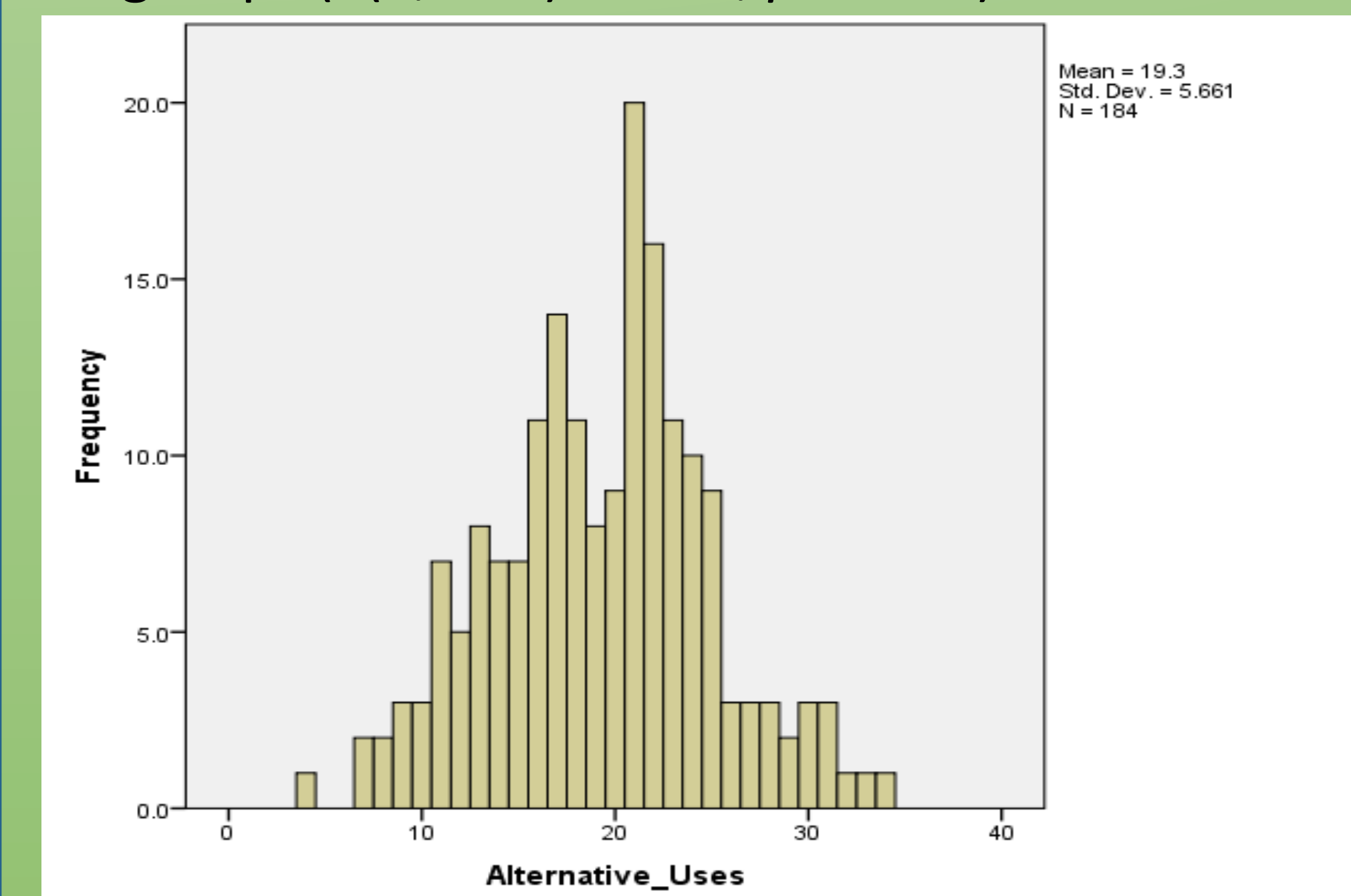
		n	Mean	SD	Range
Total Sample	PFQ	184	4.44	0.50	3.10 – 5.70
	Alternative Uses Task	184	19.30	5.66	4 – 34
Ego Depletion Group	PFQ	93	4.48	0.49	3.45 – 5.70
	Alternative Uses Task	93	18.74	5.51	4 – 34
Neutral Group	PFQ	91	4.39	0.50	3.10 – 5.45
	Alternative Uses Task	91	19.88	5.79	7 – 32

- Results from the independent sample t-test showed that while the two groups were not significantly different from each other on psychological flexibility, they were not equivalent ($p < .5$). Therefore, psychological flexibility was included as a covariate in additional analyses.



Graph 1: Analysis of Neutral vs. Ego-depletion groups with psychological flexibility as a covariate.

- For the Alternative Uses Task, a one-way analysis of covariance (ANCOVA) shows there was no significant difference between the two groups ($F(1, 181) = 2.46, p = .118$).



Graph 2: Histogram showing the distribution of scores for the Alternative Uses Task

Discussion

- This study acts as a preliminary investigation into a novel topic and provides a basic, adaptable approach for further research in this area.
- Future studies could address potential reasons for the lack of significance by imposing time limits, changing the method of ego depletion, and including more participants, among others.

- It would be particularly beneficial to change the ego depletion task to one that is more representative of a real life scenario, such as a standardized testing environment.
- Potential work force and educational applications:



Employers could decrease the complexity of given instructions to increase innovative thinking.

In the school system, standardized tests could ensure the creativity or essay portion is completed first.



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