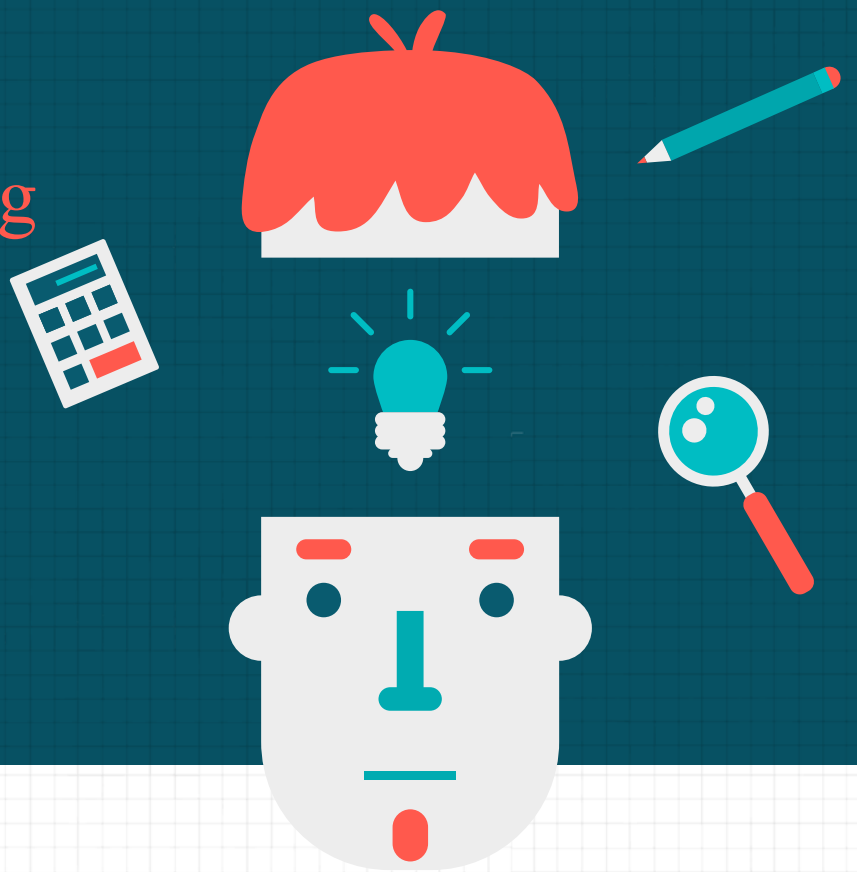
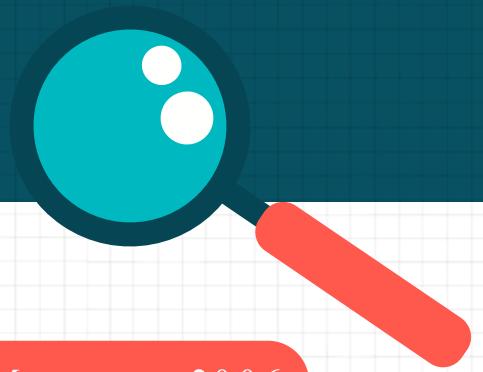
Timed Tests and Anxiety: How Time Impacts Performance in Testing

By: Some Really Awesome Students

Orange Coast College



The Research



01

Schwartz, Evans, & Agur, 2014

Timed v. untimed anatomy exams showed differences in performance

02

Tsui & Mazzocco, 2006

Time v. untimed math tests showed differences in performance

03

Goldhammer, 2015

Timed v. untimed psychodynamic testing showed differences in outcomes

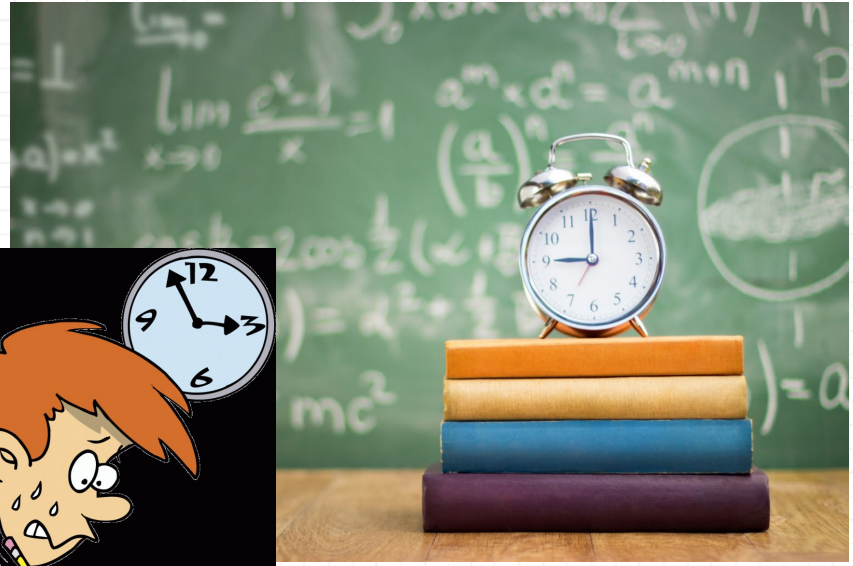
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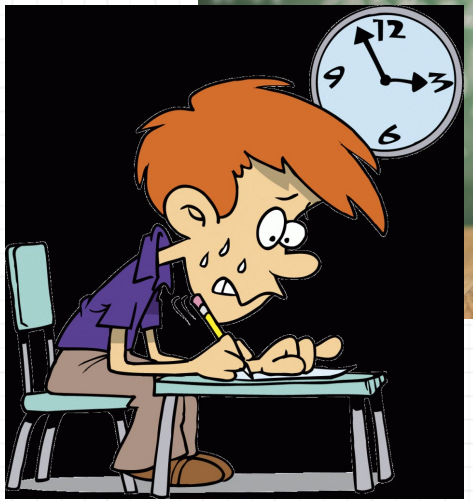
Gernsbacher et al., 2020

(1)Timed tests less valid,
(2) timed tests less reliable,
(3) times tests less inclusive,
(4) timed test less equitable

Ready...Set...Go!

It is hypothesized that when an individual is asked to perform a test with an awareness of time this will increase their levels of anxiety beyond what would have normally been experienced during an untimed test





Method

Emailed Survey

Participants (OCC students enrolled in Psychology classes) were sent a random number generator and took one of two surveys

The Surveys

Surveys contained: (1) consent form, (2) timer or no timer, (3) preference questions, (4) posttest survey, (5) demographic survey, and (6) debrief

Data Collection

Data was collected in Google Forms and analyzed in SPSS

Analysis

A paired samples t-test was performed to test the hypothesis

The Surveys

Survey Links and Sample Questions



Best Random Number Generator

https://docs.google.com/forms/d/e/1FAIpQLSdDpsofZTAwbOGUo93yaYD_wjlZ_-DH8YcKP91712PiU_60mQw/viewform?usp=sf_link

https://docs.google.com/forms/d/e/1FAIpQLSco5AhwfCPa5lOanFqILx_-Ur0zSLJUPDCZ7k9z9afYCUaMzTQ/viewform?usp=sf_link

In the timed/untimed surveys we asked both closed and open-ended questions like: favorite meal, favorite movie, favorite song, study habits, personal style, and how much time remained

In the posttest survey we asked mainly closed questions like: did the time (would time) make you feel anxious which was ranked from not at all to a lot, did you feel pressured (if yes, they were asked to explain)

Demographic survey included questions about: age, gender, education, ethnicity, and employment

The Hypothesis Testing Breakdown



Null Hypothesis

Knowledge of time does not impact levels of anxiety in test taking performance.



Independent Variable

Time allotted for test, either 5 minutes or unlimited



Test Performed

Paired Samples T-test



Research Hypothesis

Knowledge of time does impact levels of anxiety in test taking performance.



Dependent Variable

Level of anxiousness reported by participants

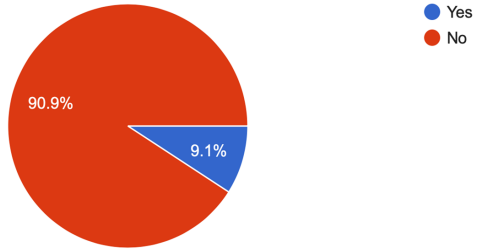


Experimental Design

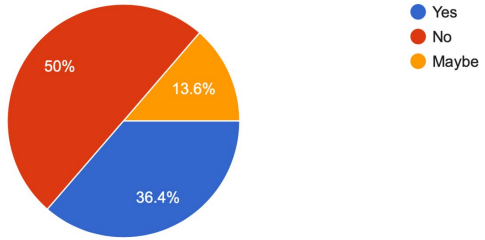
Posttest Only Design with a control group (untimed) and experimental group (timed)

Results Analysis

Were you frustrated at the amount of time given?
22 responses



Would you have been frustrated if it was timed?
22 responses



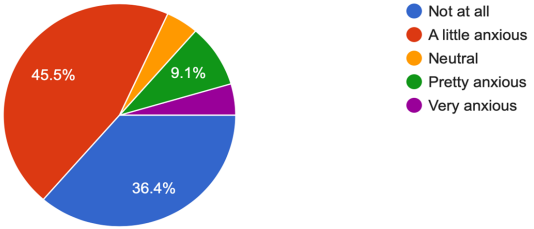
Preliminary Analysis:

We had 44 participants, 22 in the experimental and 22 in the control.

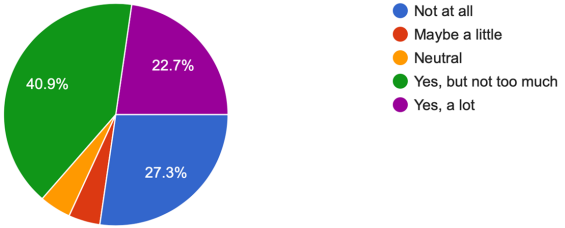
Both groups expressed anxiety surrounding time whether it was a factor in their specific survey or not.

A question was asked about pressure and participants expressed pressure coming from time, questions (style and options), and it being a survey in general.

Did the timer make you feel anxious?
22 responses



Would a time have impacted your anxiety in taking this survey?
22 responses



Data Analysis





Untimed Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Time	3	3.0000	.00000[a]	.00000
Pressure	19	.2632	.45241	.10379

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pressure	2.535	18	.021	.26316	.0451	.4812

Timed Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Time	9	1.8889	.78174	.26058
Pressure	21	.5714	.50709	.11066

One-Sample Test

Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Time	7.249	8	.000	1.88889	1.2880	2.4898
Pressure	5.164	20	.000	.57143	.3406	.8023

Comparing the two sets of data



One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
PressureTimed	21	.5714	.50709	.11066
Pressure	19	.2632	.45241	.10379

One-Sample Test

Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
PressureTimed	5.164	20	.000	.57143	.3406	.8023
Pressure	2.535	18	.021	.26316	.0451	.4812



Strengths and Weaknesses of the Study

Strengths

- The entire experiment could be performed online (cost effective)
- The survey was user friendly and used language that was easy to understand
- Data could be collected in many ways and could have purposes beyond the scope of this experiment
- Confounding variables were minimized by asking respondents about perceived pressure
- Participants were only responsible for taking one of the surveys which was randomly determined (researchers do not know who was assigned to what group either so it was double-blind)



Weakness

- Environments in which the survey were taken could not be controlled
- All participants came from classes that I am a student in
- A smaller sample size means data could not be generalized to the population at large
- Self-reporting could create bias (Responding in a way perceived as desirable)
- Confounding variables still could have impacted the data collected (how willing participants were, no reward/incentive was provided, etc)
- Some respondents opted out of answering the open-ended questions which could have impacted how they responded overall

What does all of this mean?

The hypothesis is: Accepted or Rejected

Null hypothesis: Rejected
Research hypothesis: ACCEPTED

Application in future research

- Studying anxiety around testing in both academic and personal identity applications
- Understanding the importance of time and whether it is a factor that should be used in specific testing situations

Final Note

Testing is a huge part of our society and it occurs beyond the classroom...think about college admissions essays, interviews, and meeting people for the first time.



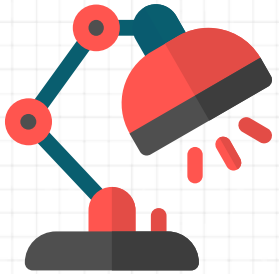
Resources

1. Gernsbacher, M. A., Soicher, R. N., & Becker-Blease, K. A. (2020). Four empirically based reasons not to administer time-limited tests. *Translational Issues in Psychological Science, 6*(2), 175-190. doi:10.1037/tps0000232

1. Goldhammer, F. (2015). Measuring ability, speed, or both? Challenges, Psychometric solutions, and what can be gained from experimental control. *Measurement: Interdisciplinary Research and Perspectives, 13*(3-4), 133-164. doi:10.1080/15366367.2015.1100020

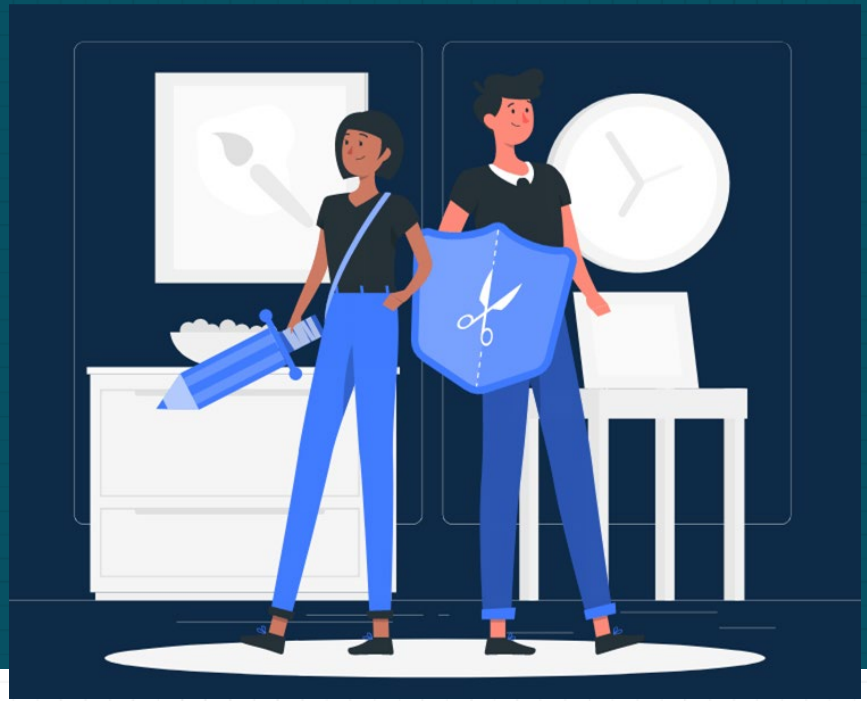
1. Schwartz, S. M., Evans, C., & Agur, A. M. (2014). Comparison of physical therapy anatomy performance and anxiety scores in timed and untimed practical tests. *Anatomical Sciences Education, 8*(6), 518-524. doi:10.1002/ase.1508

1. Tsui, J. M., & Mazzocco, M. M. (2006). Effects of math anxiety and perfectionism on timed versus untimed math testing in mathematically gifted sixth graders. *Roeper Review, 29*(2), 132-139. doi:10.1080/02783190709554397



That’s all folks!

Do you have any questions?



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