Appendix

A Appendix Tables

Table A1: Impacts of Ramadan on CEE Score

	(1)	(2)	(3)	(4)
	Score	Score	Score	Score
Hui*Year_2012	-0.9527	-2.3302		
	(2.7122)	(2.7103)		
Hui*Year_2013	-1.0004	-1.6581		
	(2.6467)	(2.6448)		
Hui*Year_2014	-2.7471	-3.5299		
	(2.6090)	(2.6067)		
Hui*Year_2015	-1.9583	-3.1176		
	(2.5705)	(2.5686)		
Hui*Year_2016	-14.5265***	-15.0378***		
	(2.5613)	(2.5596)		
Hui	-14.6394***	-13.3878***	-15.5981***	-15.5981***
	(1.9194)	(1.9183)	(0.8138)	(0.8138)
Hui*Ramadan			-12.8275***	-12.8275***
			(1.8799)	(1.8799)
Mean of Dep Variable	383.218	383.218	383.218	383.218
Year FE	Yes	No	Yes	No
STEM-Year FE	No	Yes	No	Yes
Number of Observations	124369	124369	124369	124369
R squared	0.022	0.025	0.025	0.025

Note: This table presents the effects of taking the CEE during Ramadan on the relative performance of Muslim students. In columns 1 and 2, we interact Muslim dummy with year dummies. In columns 3 and 4, we collapse the pre-treatment years into a larger control group. In columns 1 and 3, we control for Year FE; in columns 2 and 4, we control for STEM-by-Year FE. Standard errors in parentheses are clustered at the high school level. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table A2: Balance Test

	All		No Exp*No Info	Exp*No Info	No Exp*Info	Exp*Info	Anova Test	
Variables	Mean	Std.Dev	Mean	Mean	Mean	Mean	F-stat	p-value
Geneder: male	0.405	0.491	0.445	0.398	0.393	0.387	0.38	0.765
Parents with college education	0.045	0.208	0.016	0.047	0.044	0.070	1.57	0.195
Access to computer at home	0.390	0.488	0.390	0.375	0.400	0.394	0.06	0.980
Access to Internet at home	0.814	0.389	0.859	0.758	0.837	0.803	1.67	0.172
Boarding at school	0.831	0.375	0.852	0.82	0.859	0.796	0.84	0.475
Risk loving	2.461	2.125	2.480	2.438	2.652	2.282	0.71	0.548
Perceived value of college	3.692	1.186	3.543	3.680	3.919	3.620	2.51	0.058*
STEM track	0.610	0.488	0.609	0.625	0.630	0.577	0.32	0.810
Honors class	0.334	0.472	0.320	0.336	0.385	0.296	0.88	0.454
Pray everyday	0.589	0.492	0.641	0.555	0.607	0.556	0.95	0.418
Never broke a fast	0.535	0.499	0.602	0.469	0.504	0.563	1.85	0.137
Mock exam score	365.856	62.899	371.006	368.126	366.081	358.953	0.91	0.435
Observations	533		128	128	135	142		

Note: These two panels present the balance tests across the four different arms in the 2*2 experimental design. As can be seen, most variables are well-balanced, indicating that the randomization was well-implemented. "Risk loving" and "Perceived value of college" are measured using a five-point Likert scale. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table A3: Motivated Cognition in Graph Reading: Alternative Outcome Variable

	(1)	(2)	(3)	(4)	(5)	(6)
	Deviation	Deviation	Deviation	Deviation	Deviation	Deviation
Exemp	-1.6726***	-1.6957***	-1.9021***	-0.2880	-0.5790	-0.5945
	(0.6404)	(0.6457)	(0.6502)	(0.9245)	(0.9394)	(0.9526)
Fast				2.2770**	2.4863***	2.5825***
				(0.9031)	(0.9205)	(0.9368)
Exemption*Fast				-2.6987**	-2.2722*	-2.4995*
				(1.2663)	(1.3004)	(1.3371)
Constant	5.9317***			4.7848***		
	(0.4585)			(0.6409)		
Mean of Control	5.932	5.932	5.932	5.932	5.932	5.932
Class FE	No	Yes	Yes	No	Yes	Yes
Control Variables	No	No	Yes	No	No	Yes
Number of Observations	277	276	274	277	276	274
R squared	0.024	0.143	0.228	0.047	0.168	0.239

Note: This table presents the effects of receiving exemption to delay fast on the accuracy of reading the graph about the 2016 enlarged Hui-Han gap in CEE performance, as well as heterogeneous treatment effects of exemption based on fasting history. We use the "absolute deviation from true value" as outcome variable instead of the gap read by students. Robust standard errors are in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table A4: The Effect of Exemption on Prior

	(1)	(2)	(3)	(4)	(5)	(6)
	Gap	Gap	Gap	Deviation	Deviation	Deviation
Exemption	-0.0699	-0.2167	-0.1481	-0.1444	-0.2859	-0.4120
	(0.9995)	(1.0141)	(1.0586)	(0.7789)	(0.7786)	(0.8270)
Constant	-17.9325***			12.5114***		
	(0.7082)			(0.5518)		
Mean of Control	-17.933	-17.933	-17.933	12.511	12.511	12.511
Class FE	No	Yes	Yes	No	Yes	Yes
Control Variables	No	No	Yes	No	No	Yes
Number of Observations	247	247	246	247	247	246
R squared	0.000	0.116	0.218	0.000	0.142	0.214

Note: This table presents the effects of religious intervention alone on a placebo outcome, the prior about the score gap. Column 1-3 shows the effect of exemption reading article on the beliefs about the exam performance gap in 2016. Column 4-6 adopt an alternative measure, "absolute deviation from true value" as outcome variable produces similar results. Column 1 and 4 add no additional controls. Column 2 and 5 control for class fixed effect. Column 3 and 6 additionally control for the rich set of control variables we collect from background information. Robust standard errors are in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table A5: Effect of Exemption on Placebo Graph Reading (GDP Per Capita)

	(1)	(2)	(3)	(4)	(5)	(6)
	GDP gap	GDP gap	GDP gap	Deviation	Deviation	Deviation
Exemption	-712.084	-876.285	-1126.323	799.783	1011.386	628.583
	(1088.079)	(1146.520)	(1202.963)	(1371.746)	(1375.892)	(1464.607)
Constant	-28433.923***			6140.187***		
	(760.942)			(959.323)		
Mean of Control	-28433.923	-28433.923	-28433.923	6140.187	6140.187	6140.187
Class FE	No	Yes	Yes	No	Yes	Yes
Control Variables	No	No	Yes	No	No	Yes
Number of Observations	229	229	228	229	229	228
R squared	0.002	0.061	0.161	0.001	0.149	0.216

Note: This table presents the effect of receiving an exemption on a placebo outcome, the accuracy of reading the 2016 Sino-Japanese income gap. Column 1-3 use the reading of the GDP gap directly. Column 4-6 adopt an alternative measure, "absolute deviation from true value" as outcome variable produces similar results. Column 1 and 4 add no additional controls. Column 2 and 5 control for class fixed effect. Column 3 and 6 additionally control for the rich set of control variables we collect from background information. Robust standard errors are in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table A6: Share of Very Accurate Response: Placebo Outcome vs. Main Outcome

	(1)	(2)	(3)
	Accuracy	Accuracy	Accuracy
Exempt * No Info	-0.0313	-0.0356	-0.0367
	(0.0622)	(0.0624)	(0.0632)
No Exempt * Info	-0.1769***	-0.1837***	-0.1674***
	(0.0613)	(0.0618)	(0.0622)
Exempt * Info	-0.0617	-0.0573	-0.0440
	(0.0606)	(0.0611)	(0.0615)
Benchmark	No Exempt * No Info	No Exempt * No Info	No Exempt * No Info
Mean of Control	0.555	0.555	0.555
Class FE	No	Yes	Yes
Control Variables	No	No	Yes
Number of Observations	533	532	529
R squared	0.018	0.079	0.126

Note: This table compares the share of very accurate response across all four arms: "*No Exempt & No Info*", "*Exempt & No Info*", "*No Exempt & Info*", "*Exempt & Info*" by pooling both the main and placebo outcome on graph reading. Column 1-3 use exactly the same specification where we include the placebo outcome (students' beliefs about the score gap) and use it benchmark for the regression. The only difference across the columns is the threshold below which a response is counted as accurate response (See "Threshold for Score Graph" and "Threshold for GDP graph"). Robust standard errors are in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

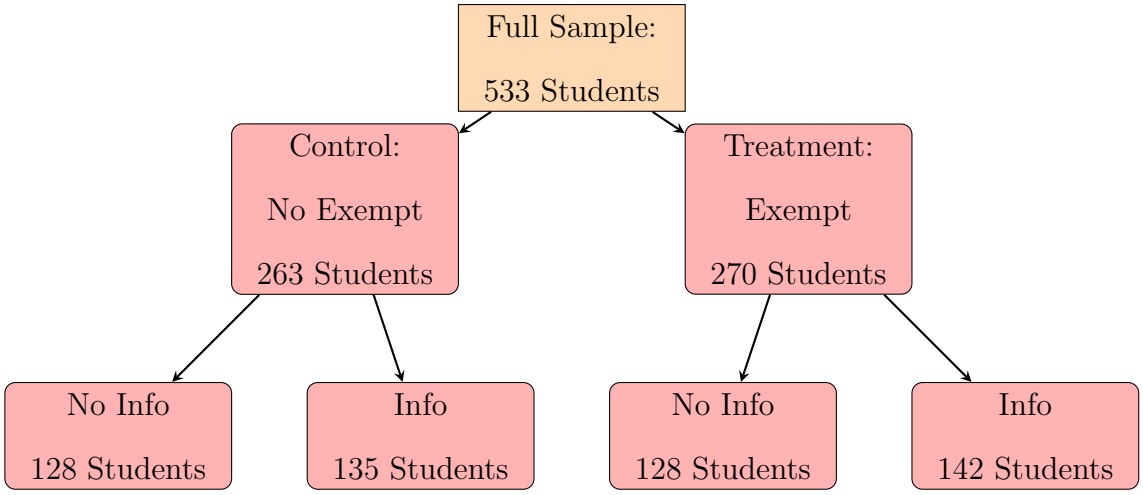
Table A7: Diff-in-Diff Estimate of Effect of Exemption Article on the Reading of Exam Performance Gap

	(1) Gap	(2) Gap	(3) Gap	(4) Deviation	(5) Deviation	(6) Deviation
Exempt*Info	-1.9173*	-1.9529**	-1.7041*	-1.5410**	-1.6221**	-1.6807**
	(0.9892)	(0.9114)	(0.9728)	(0.7290)	(0.6791)	(0.6959)
Class FE	No	Yes	Yes	No	Yes	Yes
Control Variables	No	No	Yes	No	No	Yes
Number of Observations	523	523	520	523	523	520
R squared	0.226	0.285	0.321	0.300	0.364	0.390

Note: This table presents the Diff-in-Diff estimates of the effect of exemption article on the reading of exam performance gap, by incorporating students from whom placebo outcomes (the beliefs about the performance gap in 2016) were elicited. The regression we run is similar to those in the main text:
Score Gap $= \alpha$Exempt $+ \beta$Info $+ \gamma$Exemption $*$ Info $+$ List of Controls in the Table.
where "Exemption" takes the value of 1 if students are presented with the exemption reading materials, and 0 if not. "Info" takes the value of 1 if students are assigned to read the performance gap in exam score (i.e. main outcome), and 0 if students do not see the score gap graph, and instead give their guess (not reading) about the performance gap in 2016 (i.e. placebo outcome). Column 1-3 use the reading of the GDP gap directly. Column 4-6 adopt an alternative measure, "absolute deviation from true value" as outcome variable produces similar results. Column 1 and 4 add no additional controls. Column 2 and 5 control for class fixed effect. Column 3 and 6 additionally control for the rich set of control variables we collect from background information. Robust standard errors are in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

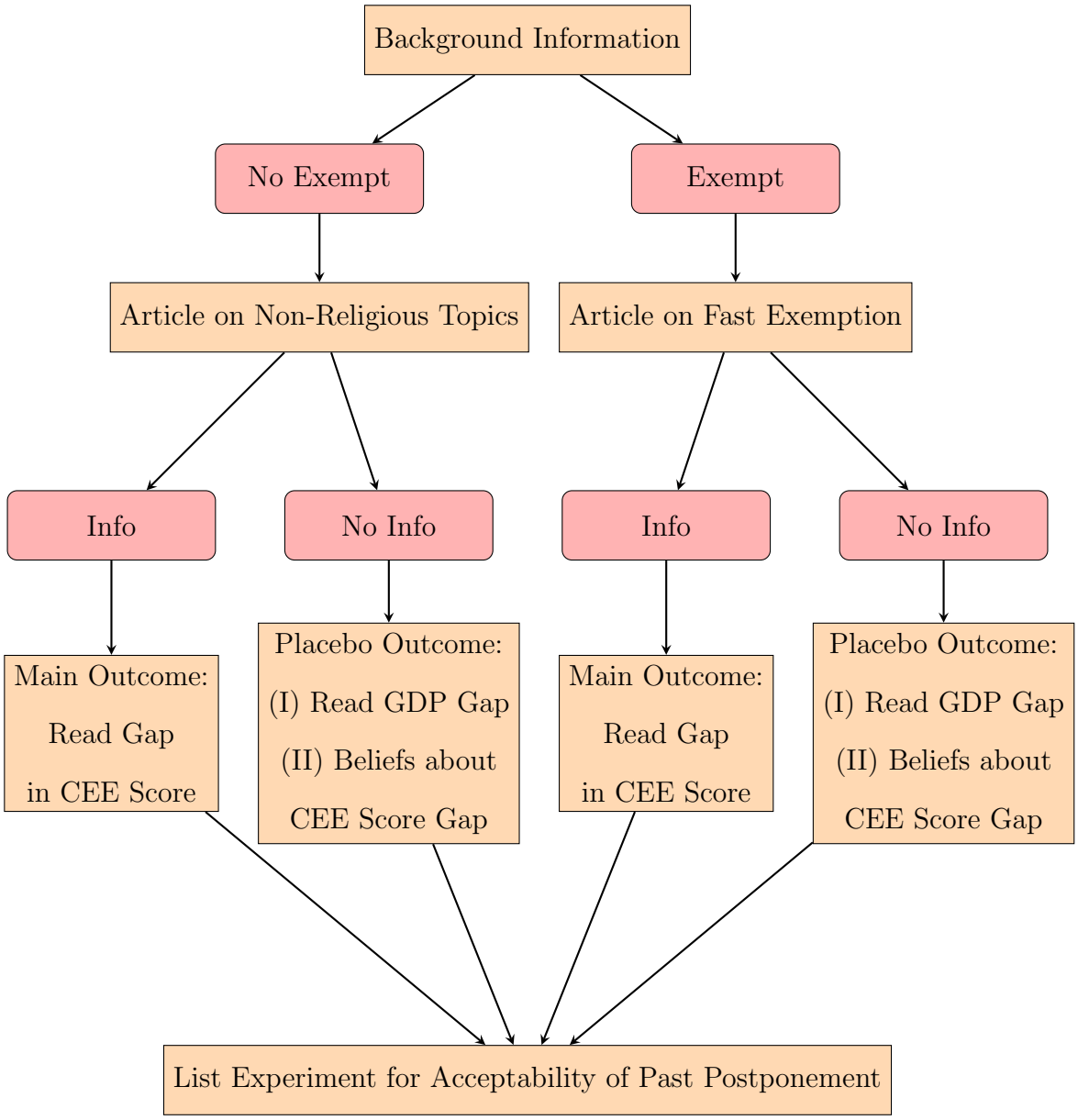
B Appendix Figures

Figure B1: Experimental Design



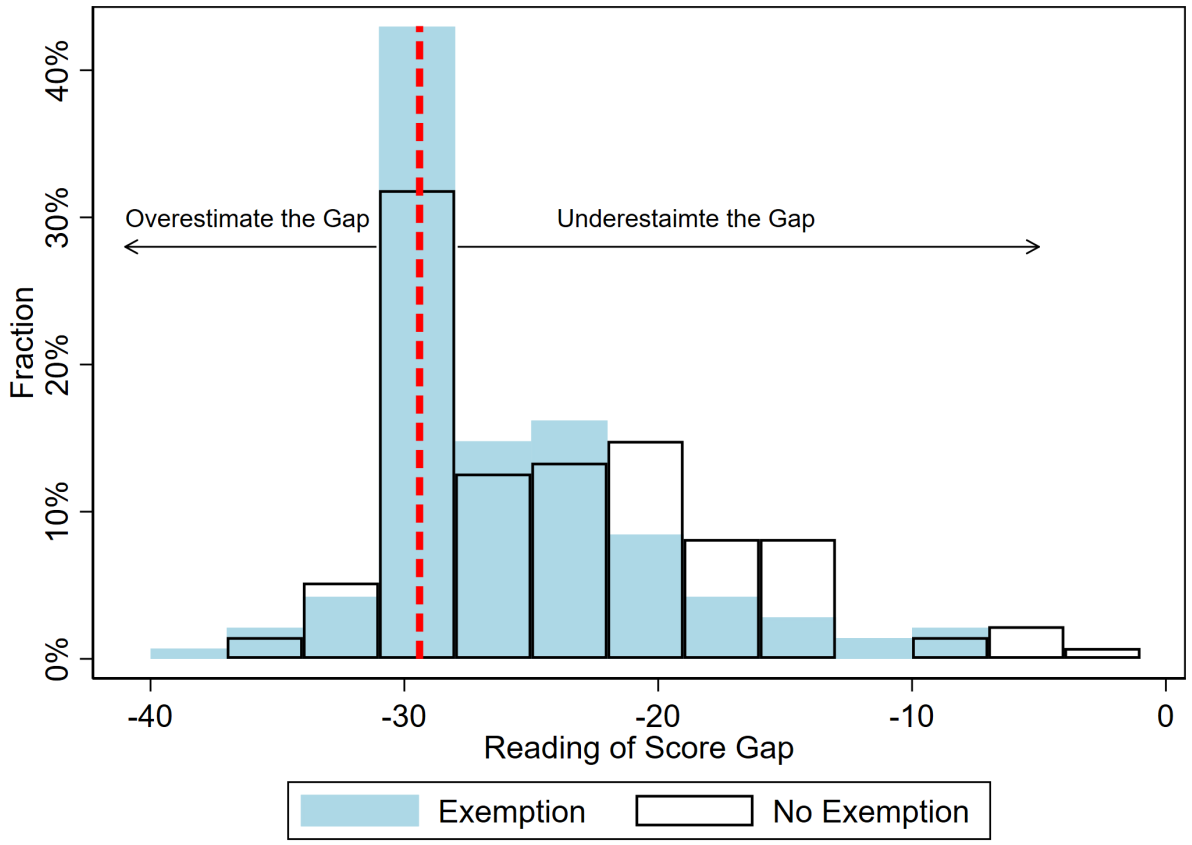
Note: This picture depicts the structure of the experimental design. The most important experimental variation is whether the exemption reading material is presented to the students. Randomly half of the students (263 Students) are assigned to "No Exempt" where they do not read the exemption materials. The other half of the students (270 Students) are assigned to "Exempt" where the materials are presented during the experiment. Within each group of the students, some students are presented with the graphical information about the score gap between Hui and Han students, whose group is labelled as "Info", whereas other students are not presented with such information, whose group is labelled as "no info". Therefore, there are in total four groups: No Exempt * No Info (128 Students), No Exempt * Info (135 Students), Exempt * No Info (128 Students), Exempt * Info (142 Students),

Figure B2: Flow Chart for Details of the Experiment



Note: This picture depicts the sequence in which each component of the survey is displayed for the four versions of the survey, which differ on (I) whether students read the exemption material ("*Exempt*") or the placebo material ("*No Exempt*"); (II) whether students read the score gap graph ("*Info*") or the Sino-Japanese GDP graph ("*No Info*"). The four versions are therefore "*No Exempt*No Info*", "*Exempt*No Info*", "*No Exempt*Info*", "*Exempt*Info*" respectively.

Figure B3: Distribution of Students' Reading of the Score Gap



Note: This figure plots the distribution of the main outcomes elicited, namely, students' reading of the score gap, for students who read the exemption article ("Exemption") and who did not read the exemption article ("No Exemption"). The red dash line correspond to the correct answer (-29.4).

C Appendix: Literature Review of Motivated Cognition

Closely relates to an older psychology literature on motivated reasoning, as summarized by Kunda (1990), the theory of motivated cognition (Bénabou, 2015; Bénabou and Tirole, 2011) hypothesize that decision makers attach psychological values to certain beliefs, and can distort their own perceptions toward such preferred beliefs to increase their utility.

To the best of our knowledge, existing research do not directly manipulate the existence of psychological motivation itself in a natural setting but a series of lab experiments in both economics and political science have been making substantial progress in testing motivated beliefs/cognition. In economics, Eil and Rao (2011) and Mobius et al. (2011) show that people exhibit asymmetric updating behavior about self-image, and Di Tella et al. (2015) show that beliefs about others' altruism decrease with stakes. Exley and Kessler (2018) find that people make simple mistakes when they are motivated to do so. In political science, Redlawsk (2002) study the effects of motivated reasoning on political decision-making; Taber and Lodge (2006) study how people process arguments on important public policy issues with different prior attitudes; Nyhan and Reifler (2010) demonstrates that motivation affects information processing in reading news articles about politician. There are also observational studies that relate to motivated beliefs/cognition, such as Di Tella et al. (2007); Oster et al. (2013); Huffman et al. (2019); Schwardmann et al. (2019).

Our paper test a particularly strong form of distortion in information processing, "reality denial". As a unique prediction of the theory, it says that people may distort objective information, even when it is directly presented in front of their eyes. To the best of our knowledge, existing research has not tested this prediction. In addition to "reality denial", the theory of motivated cognition Bénabou and Tirole (2016) posits that people could distort manipulate information processing through various other ways, such as directional bias in belief updating (Eil and Rao, 2011; Mobius et al., 2011), selectively acquire information in the presence of substantial cognitive cost (Ambuehl, 2017), false memory and selective recall (Chew et al., 2020). To the best of our knowledge, this channel has not been tested and the

findings in our paper fill in this gap. Our findings also complements existing studies that investigate the role of motivation in beliefs or decision making (Dana et al., 2007; Di Tella et al., 2015; Exley, 2016; Exley and Kessler, 2018).

D Translated Survey Questions and Reading Materials

Section A: Background Information

Name and Student ID

1. **Your gender**: A. Male B. Female

2. **Your ethnic group**: A. Han B. Hui C. Other

3. **The highest education level among your parents**:

   A. Primary school or below B. Middle school
   C. Occupational high school
   D. Regular high school
   E. Community college
   F. Regular college
   G. Graduate degrees

4. **Do you have access to computer and internet at home?**
   A. Access to neither
   B. Access to computer but not internet
   C. Access to internet but not computer
   D. Access to both

5. **Do you board at school?**
   A. Yes B. No

6. **Which of the following hobbies do you have?**
   A. Video games on PC
   B. Video games on smart phone
   C. Foreign sports matches
   D. Japanese and Korean TV shows

E. American and British TV shows
F. Foreign popular music
G. None of the above

7. What is your risk attitude in making high-stakes life decisions?

Please evaluate on a scale of 1 to 5： 1=very cautious， 2=relatively cautious， 3=neutral， 4=relatively adventurous， 5=very adventurous）

8. Do you think higher education can lead to a better life?

Please evaluate on a scale of 1 to 5： 1=completely disagree， 2=generally disagree， 3=neutral， 4= generally agree， 5= completely agree）

9. Do you pray everyday?

A. Yes B. No C. Not applicable because I am not Muslim

10. Did you ever break a fast during Ramadan in the past three years?

A. Yes B. No C. Not applicable because I am not Muslim

Section B: Reading Material

(treatment and control reading materials randomly assigned to students)

Please read the following article and answer three reading comprehension questions. (For each correct answer, you will receive 2 RMB in rewards.)

(Treatment reading material)

Between 2016 and 2018, the Muslim holy month of Ramadan coincided with the college entrance examination. Therefore, for many Muslim students, ``whether they can break the fast and make it up later after the college entrance exam" has become an important issue that cannot be ignored.

In order to understand whether ``Ramadan fasting can be postponed during the college entrance examination," we consulted Guo Haihui, a well-known scholar who graduated from the Royal Religious University of Malaysia and the current Imam of the century-old temple ``Xiangfang Mosque." He said:

``The acts of worship of Islam has three goals: to express faith to Allah, exercise good words and deeds and sublimate souls. The Prophet (PBUH) said: `Allah does not look at your appearance and your goods. He looks only at your heart and your deeds.' The good intention for any deed is the key to get good results. The college entrance examination has become a major concern for the whole society, let alone for the students. It is no exaggeration to describe it as the turning point for the students. Because the examination is both mentally and physically exhausting and no easier than any other work, both parents and students need to make great efforts to prepare for it. Therefore, it is necessary to appropriately reduce their burden. To temporarily postpone the fasting during the college entrance examination will neither anger Allah, nor will it weaken your beliefs."

We also consulted the famous scholar Liu Xueqiang, who is also the vice president of the Provincial Islamic Association and the Imam of the famous Xigong Mosque. His suggestion was consistent with that of Guo Haihui:

``The purpose of Islamic law is to create convenience for people, not to create difficulties. The implementation of Islamic law can be flexible in the actual process and it should not be interpreted rigidly. Allah never asks people to do things beyond their ability. Therefore, if the candidate thinks that fasting will affect his or her test scores, it is acceptable to break the fast, and make up afterwards. It poses no problem in the Islamic law."

This situation is not unique to China: as the college entrance examination is held in June in many countries, the jurists in these countries also give corresponding doctrinal orders for the examination and fasting. Through summarizing, we find that many authoritative religious scholars and institutions abroad share similar views on this issue with imams in China. For example, when being asked if

``students can break the fast during the college entrance examination," Grand Mufti Shawki Allam of the Egyptian Shariah Committee replied:

``If fasting affects the students' ability to revise and study for the exam, resulting in symptoms like reduced concentration, unresponsiveness, dizziness, etc., and the exam time stipulated by the education system cannot be adjusted to the end of Ramadan, students should break the fast and make it up after the exam, so that their previous efforts will not be wasted."

Experts of the French Muslim Religious Committee also conducted in-depth researches on this issue and finally issued a notice: ``It is recommended that candidates break the fast, especially those who need to take the exam in the afternoon. However, they need to make it up after Ramadan."

11. According to Mr. Guo Haihui, one is allowed to delay the fast for the CEE, because Allah cares the most about:

A. Your appearance and your goods
B. Your heart and your deeds
C. Both A and B are correct
D. Both A and B are incorrect

12. What is the opinion of Mr. Liu Xueqiang on Ramadan fasting:

A. The implementation of Islamic law can be flexible, and students should be allowed to delay their fast for the CEE
B. Ramadan fasting is an outdated tradition that does not fit modern societies
C. Both A and B are correct
D. Both A and B are incorrect

13. According to Mr. Shawki Allam, what are the conditions that warrant an exemption to delay the fast for an exam:

A. Ramadan fasting would hurt exam performance
B. The exam cannot be rescheduled
C. Both A and B are needed to delay the fast
D. Neither A nor B is needed to delay the fast

Please read the following article and answer three reading comprehension questions. (For each correct answer, you will receive 2 RMB in rewards.)

(Control reading material) :

There is a US diplomat who spent ten years in Moscow in the 1920s and 1930s. He wrote in his memoir that he has watched the ``Swan Lake'' performance for 300 times. Even for a classic ballet as famous as the ``Swan Lake,'' 300 times is too much. But for a diplomat, some social engagements are inevitable, and he had no choice but to watch this play again and again until it was a bit overwhelming.

I guess, for the first few dozen times to watch the "Swan Lake" performance, what the American heard was the beautiful music of Tchaikovsky and what he saw was the beautiful performance of the artists of the former Soviet Union. He appreciated it wholeheartedly and applauded ardently from time to time. After having watched it for 100 times, the impression became different. At that time, he could only hear some instruments ringing and see some people running on the stage and he became slow-witted as well. Then, after 200 times, the impression changed again. The music was on and the curtain was up, but there was only the white void in front of him - he was caught in the nightmare of this play. At this point, his eyes were blank, his face was smirking, like a hibernating crocodile whose loose muscles could not support the chin, or a landing boat rushing to the beach, and his mouth was opening, with big drops rolling down from the corner of his mouth and falling on his knees. It was so intoxicating that not until the curtain was down and someone switched off the light did he realize that it was over. He quickly slapped himself awake and went home. Later, when he got the order to leave the Soviet Union, he said with relief: well, finally, no more "Swan Lake."

As you know, the scene above is just my guess - to be honest, no one will ever include this in one's memoirs - but I think anyone repeatedly appreciating a piece of work will encounter these three phases. In the first phase, you hear the music and see the dance - in short, you are enjoying art. In the second phase, you hear some sounds and see some objects moving, and you are aware of a familiar physical process. In the third phase, you have gained a philosophical perspective and finally realized that the ballet, just like everything else in the world, is a form of material existence. From art to science and then to philosophy, it is a process of returning to the original nature.

Normally, people's appreciation always stays in the first phase, but some people can reach the second phase. For example, in the movie "Farewell My Concubine," the tyrant played by Ge You blamed an actor: The Conqueror played by other people took six steps, why did you take four steps? In the lab, a physicist would also ask an object in confusion: how can your acceleration be two Gs while others is a G when falling in a vacuum? In the laboratory, a physical process must be reproducible, or otherwise it will not be scientific.

Therefore, no object falls with two Gs' acceleration. The classic works of art should also be reproducible. Take "Swan Lake" for example, the content of this ballet cannot be changed in order to let future generations appreciate the best things created by the predecessors. It can only be played over and over again.

Classic works are good and worth watching, but not too many times. Otherwise, the art cannot be appreciated - just like tea drinking in the "Dream of Red Mansions": one cup is for tasting, two cups are for the thirst, and three cups are drinking like a fish. Of course, whether it is tea-tasting or drinking like a fish, it is just a way of material existence. In this respect, there is no difference between them...

11. According to the author, what are the three phases in the repeated appreciation of art?

A. Science-Philosophy-Art
B. Philosophy-Art-Science
C. Art-Science-Philosophy
D. Art-Philosophy-Science

12. What is the author's opinion regarding the "reproducibility**" of art**:

A. Physics should be reproducible, art should not be reproducible
B. Physics should not be reproducible, art should be reproducible
C. Both should be reproducible
D. Neither should be reproducible

13. What is the author's opinion regarding the appreciation of art:

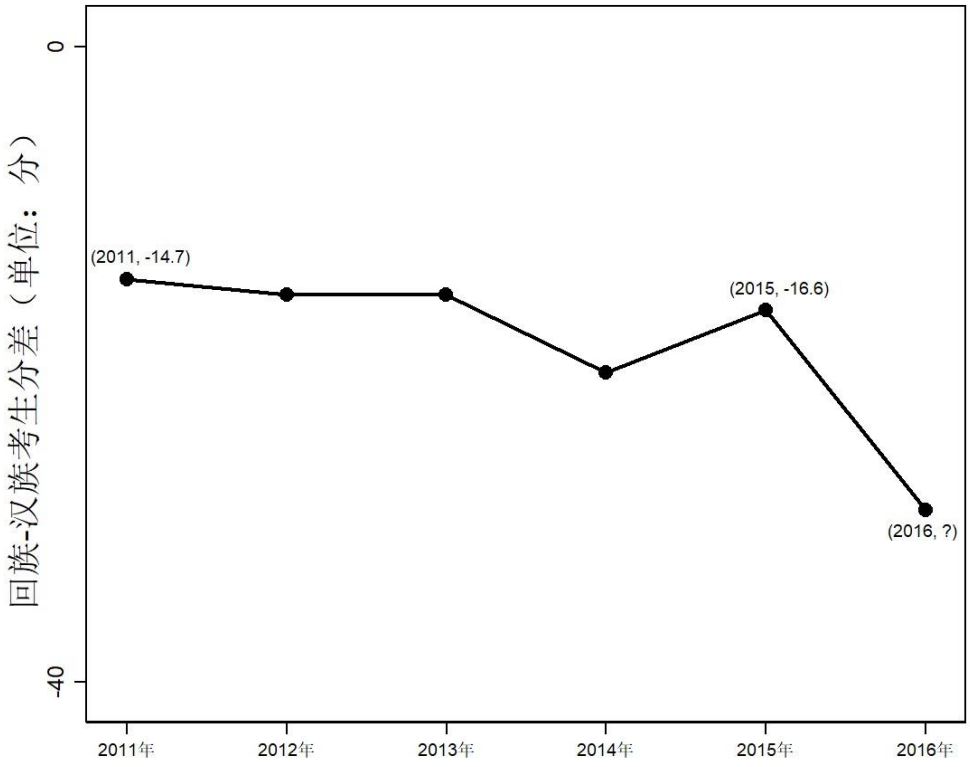
A. One should appreciate the same work repeatedly
B. One should not appreciate the same work repeatedly
C. Both statements above are wrong
D. No clear opinion expressed by the author

Section C: Reading Gaps

(treatment and control graphs randomly assigned to students)

Hui-Han gap figure:

Based on the administrative information provided by the Ningxia Provincial Bureau of Examination, we plot the gap in the College Entrance Exam (CEE) score between Hui (Muslim) and Han (non-Muslim) students in Ningxia from 2011 to 2016. The trend of this Hui-Han gap is shown in the figure below.



(Note: The y-axis label is "College Entrance Exam score gap between Muslim (Hui) and non-Muslim (Han) students (unit: point)")

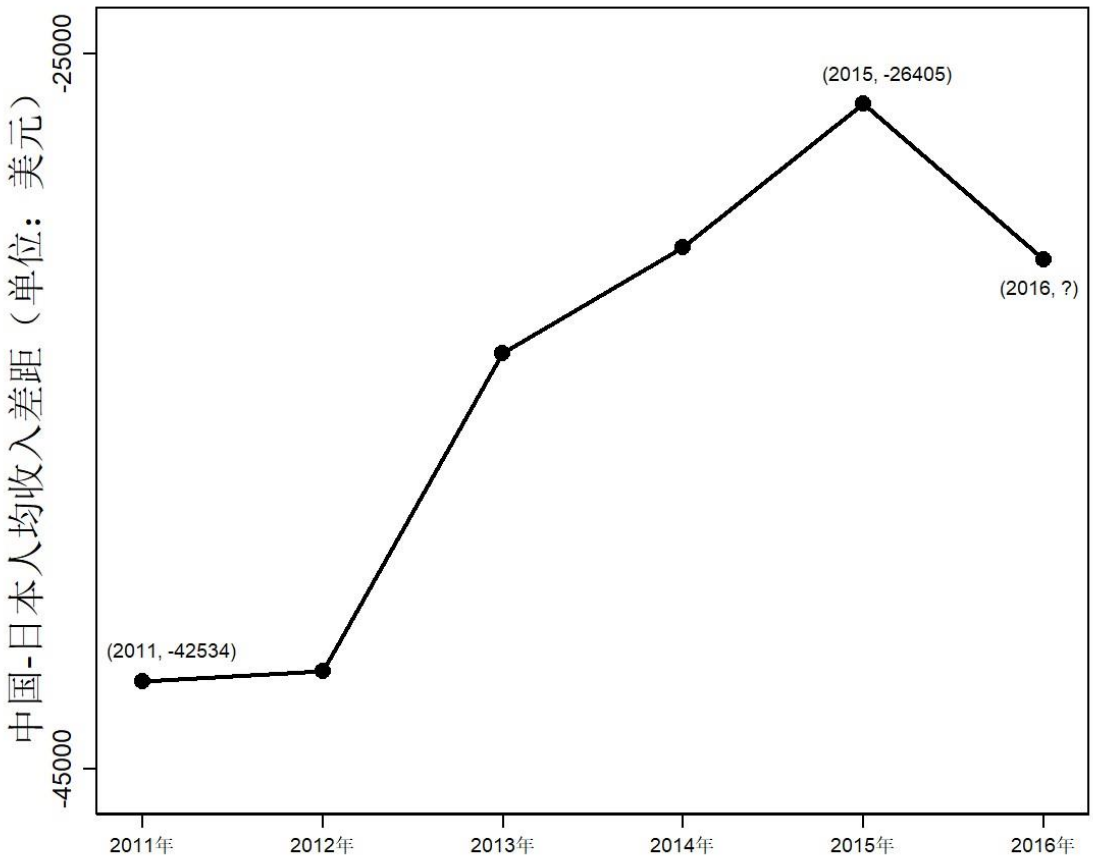
In 2011, the average CEE score of Hui students was 366.9, the average score of Han students was 381.6, so the average Hui-Han gap was -14.7 points. In 2015, this gap was -16.6 points.

14. In 2016, the CEE happens during Ramadan. Please read from this figure: what was the CEE score gap between Muslim and non-Muslim students in 2016? (If the accuracy of your answer is above the median of all survey response, you will receive a cash reward of 3 RMB.)

Answer: _____ points

Sino-Japanese gap figure:

Based on data published by the World Bank, we plot the gap in average annual income between China and Japan from 2011 to 2016. The trend of this Sino-Japanese gap is shown in the figure below.



(Note: The y-axis label is "Per-capita income gap between China and Japan (unit: U.S. dollar)")

In 2011, the average annual income was 5634 USD in China, while 48168 USD in Japan, so the average Sino-Japanese gap was -42534 USD. In 2015, this gap was -26405 USD.

14. Please read from this figure: what was the annual income gap between China and Japan in 2016? (If the accuracy of your answer is above the median of all survey response, you will receive a cash reward of 3 RMB.)

Answer: _____ USD

Section D: Questions on the CEE

15. Your total score in the "second mock exam": _____

16. Among the five statements listed below, how many do you agree with?

In this question, you do not need to specify which exact statements you agree with, you just need to tell us the number of statements that you agree with (0-5).

(1) Learning alone is more effective than learning in groups.
(2) We should care about what we have actually learned more than the CEE score itself.
(3) Delaying Ramadan fast until after the CEE is acceptable.
(4) Playing sports is good for exam preparation.
(5) The CEE mainly tests on one's familiarity with the material rather than actual intelligence.