

第 6 問 (配点 24)

A Your English teacher has assigned this article to you. You need to prepare notes to give a short talk.

Perceptions of Time

When you hear the word “time,” it is probably hours, minutes, and seconds that immediately come to mind. In the late 19th century, however, philosopher Henri Bergson described how people usually do not experience time as it is measured by clocks (**clock time**). Humans do not have a known biological mechanism to measure clock time, so they use mental processes instead. This is called **psychological time**, which everyone perceives differently.

If you were asked how long it had taken to finish your homework, you probably would not know exactly. You would think back and make an estimate. In a 1975 experiment, participants were shown either simple or complex shapes for a fixed amount of time and asked to memorize them. Afterwards, they were asked how long they had looked at the shapes. To answer, they used a mental process called **retrospective timing**, which is estimating time based on the information retrieved from memory. Participants who were shown the complex shapes felt the time was longer, while the people who saw the simple shapes experienced the opposite.

Another process to measure psychological time is called **prospective timing**. It is used when you are actively keeping track of time while doing something. Instead of using the amount of information recalled, the level of attention given to time while doing the activity is used. In several studies, the participants performed tasks while estimating the time needed to complete them. Time seemed shorter for the people doing more challenging mental activities which required them to place more focus on the task than on time.

Time felt longer for the participants who did simpler tasks and the longest for those who were waiting or doing nothing.

Your emotional state can influence your awareness of time, too. For example, you can be enjoying a concert so much that you forget about time. Afterwards, you are shocked that hours have passed by in what seemed to be the blink of an eye. To explain this, we often say, “Time flies when you’re having fun.” The opposite occurs when you are bored. Instead of being focused on an activity, you notice the time. It seems to go very slowly as you cannot wait for your boredom to end. Fear also affects our perception of time. In a 2006 study, more than 60 people experienced skydiving for the first time. Participants with high levels of unpleasant emotions perceived the time spent skydiving to be much longer than it was in reality.

Psychological time also seems to move differently during life stages. Children constantly encounter new information and have new experiences, which makes each day memorable and seem longer when recalled. Also, time creeps by for them as they anticipate upcoming events such as birthdays and trips. For most adults, unknown information is rarely encountered and new experiences become less frequent, so less mental focus is required and each day becomes less memorable. However, this is not always the case. Daily routines are shaken up when drastic changes occur, such as changing jobs or relocating to a new city. In such cases, the passage of time for those people is similar to that for children. But generally speaking, time seems to accelerate as we mature.

Knowledge of psychological time can be helpful in our daily lives, as it may help us deal with boredom. Because time passes slowly when we are not mentally focused and thinking about time, changing to a more engaging activity, such as reading a book, will help ease our boredom and speed up the time. The next occasion that you hear “Time flies when you’re having fun,” you will be reminded of this.

Your notes:

Perceptions of Time

Outline by paragraph

1.
2. *Retrospective timing*
3. *Prospective timing*
4.
 - *Skydiving*
5. *Effects of age*
 - *Time speeds up as we mature, but a .*
6. *Practical tips*

My original examples to help the audience

A. Retrospective timing

Example:

B. Prospective timing

Example:

問 1 Choose the best options for and .

- ① Biological mechanisms
- ② Effects of our feelings
- ③ Kinds of memory
- ④ Life stages
- ⑤ Ongoing research
- ⑥ Types of time

問 2 Choose the best option for

41

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- ① major lifestyle change at any age will likely make time slow down
- ② major lifestyle change regardless of age will likely make time speed up
- ③ minor lifestyle change for adults will likely make time slow down
- ④ minor lifestyle change for children will likely make time speed up

問 3 Choose the best option for

42

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- ① anticipating a message from a classmate
- ② memorizing your mother's cellphone number
- ③ reflecting on how many hours you worked today
- ④ remembering that you have a meeting tomorrow

問 4 Choose the best option for

43

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- ① guessing how long you've been jogging so far
- ② making a schedule for the basketball team summer camp
- ③ running into your tennis coach at the railway station
- ④ thinking about your last family vacation to a hot spring

- B** You are preparing a presentation for your science club, using the following passage from a science website.

Chili Peppers: The Spice of Life

Tiny pieces of red spice in chili chicken add a nice touch of color, but biting into even a small piece can make a person's mouth burn as if it were on fire. While some people love this, others want to avoid the painful sensation. At the same time, though, they can eat sashimi with wasabi. This might lead one to wonder what spiciness actually is and to ask where the difference between chili and wasabi comes from.

Unlike sweetness, saltiness, and sourness, spiciness is not a taste. In fact, we do not actually taste heat, or spiciness, when we eat spicy foods. The bite we feel from eating chili peppers and wasabi is derived from different types of compounds. Chili peppers get their heat from a heavier, oil-like element called capsaicin. Capsaicin leaves a lingering, fire-like sensation in our mouths because it triggers a receptor called TRPV1. TRPV1 induces stress and tells us when something is burning our mouths. Interestingly, there is a wide range of heat across the different varieties of chili peppers, and the level depends on the amount of capsaicin they contain. This is measured using the Scoville Scale, which is also called Scoville Heat Units (SHU). SHUs range from the sweet and mild *shishito* pepper at 50-200 SHUs to the Carolina Reaper pepper, which can reach up to 2.2 million.

Wasabi is considered a root, not a pepper, and does not contain capsaicin. Thus, wasabi is not ranked on the Scoville Scale. However, people have compared the level of spice in it to chilis with around 1,000 SHUs, which is on the lower end of the scale. The reason some people cannot tolerate chili spice but can eat foods flavored with wasabi is that the spice compounds in it are low in density. The compounds in wasabi vaporize easily, delivering a blast of spiciness to our nose when we eat it.

Consuming chili peppers can have positive effects on our health, and much research has been conducted into the benefits of capsaicin. When capsaicin activates the TRPV1 receptor in a person's body, it is similar to what happens when they experience stress or pain from an injury. Strangely, capsaicin can

also make pain go away. Scientists found that TRPV1 ceases to be turned on after long-term exposure to chili peppers, temporarily easing painful sensations. Thus, skin creams containing capsaicin might be useful for people who experience muscle aches.

Another benefit of eating chili peppers is that they accelerate the metabolism. A group of researchers analyzed 90 studies on capsaicin and body weight and found that people had a reduced appetite when they ate spicy foods. This is because spicy foods increase the heart rate, send more energy to the muscles, and convert fat into energy. Recently, scientists at the University of Wyoming have created a weight-loss drug with capsaicin as a main ingredient.

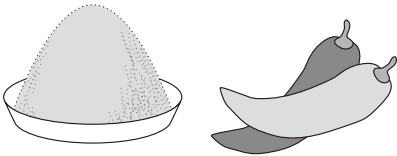
It is also believed that chili peppers are connected with food safety, which might lead to a healthier life. When food is left outside of a refrigerated environment, microorganisms multiply on it, which may cause sickness if eaten. Studies have shown that capsaicin and other chemicals found in chili peppers have antibacterial properties that can slow down or even stop microorganism growth. As a result, food lasts longer and there are fewer food-borne illnesses. This may explain why people in hot climates have a tendency to use more chili peppers, and therefore, be more tolerant of spicier foods due to repeated exposure. Also, in the past, before there were refrigerators, they were less likely to have food poisoning than people in cooler climates.

Chili peppers seem to have health benefits, but can they also be bad for our health? Peppers that are high on the Scoville Scale can cause physical discomfort when eaten in large quantities. People who have eaten several of the world's hottest chilis in a short time have reported experiencing upset stomachs, diarrhea, numb hands, and symptoms similar to a heart attack. Ghost peppers, which contain one million SHUs, can even burn a person's skin if they are touched.

Luckily the discomfort some people feel after eating spicy foods tends to go away soon—usually within a few hours. Despite some negative side effects, spicy foods remain popular around the world and add a flavorful touch to the table. Remember, it is safe to consume spicy foods, but you might want to be careful about the amount of peppers you put in your dishes.

Presentation slides:

Chili Peppers:
The Spice of Life



1

Characteristics

chili peppers

wasabi

- oil-like elements
- triggering TRPV1
- persistent feeling

- 44
- changing to vapor
- spicy rush

2

Positive Effects

Capsaicin can... 45

- A. reduce pain.
- B. give you more energy.
- C. speed up your metabolism.
- D. make you feel less stress.
- E. decrease food poisoning.

3

Negative Effects

When eating too many strong chili peppers in a short time,

- 46
- 47

4

Spice Tolerance

48

5

Closing Remark

49

6

問 1 What is the first characteristic of wasabi on Slide 2?

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- ① burning taste
- ② fire-like sensation
- ③ lasting feeling
- ④ light compounds

問 2 Which is an error you found on Slide 3?

45

- ① A
- ② B
- ③ C
- ④ D
- ⑤ E

問 3 Choose two options for Slide 4. (The order does not matter.)

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- ① you might activate harmful bacteria.
- ② you might experience stomach pain.
- ③ you might lose feeling in your hands.
- ④ your fingers might feel like they are on fire.
- ⑤ your nose might start hurting.

問 4 What can be inferred about tolerance for spices for Slide 5?

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- ① People with a high tolerance to chili peppers pay attention to the spices used in their food.
- ② People with a high tolerance to wasabi are scared of chili peppers' negative effects.
- ③ People with a low tolerance to chili peppers can get used to their heat.
- ④ People with a low tolerance to wasabi cannot endure high SHU levels.

問 5 Choose the most appropriate remark for Slide 6.

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- ① Don't be afraid. Eating spicy foods will boost your confidence.
- ② Next time you eat chili chicken, remember its punch only stays for a second.
- ③ Personality plays a big role in our spice preference, so don't worry.
- ④ Unfortunately, there are no cures for a low wasabi tolerance.
- ⑤ When someone offers you some spicy food, remember it has some benefits.