

Unit 3 Behavior

Part 1 Overview of the unit

Teaching objectives

Upon completion of this unit, the T is expected to enable Ss to:

OBJECTIVES	
<ul style="list-style-type: none">understand the genetic factors that contribute to criminality; think about how environmental factors play a role in criminal behaviorunderstand the neurological basis of erratic adolescent behavior; think about whether key decisions should be delayed until later lifeunderstand Chinese moral education	Knowledge & thinking
<p>Reading skill</p> <ul style="list-style-type: none">identify in-text referencingidentify cause and effect <p>Critical thinking skill</p> <ul style="list-style-type: none">strengthen an argument <p>Academic writing skill</p> <ul style="list-style-type: none">practice anaphoric and cataphoric referencing to achieve cohesion <p>Language development</p> <ul style="list-style-type: none">use vocabulary for describing cause and effectuse inverted conditionals to express unreal past	Language & skills
design an e-poster to introduce famous Chinese quotes of moral education	Mini-project
write a cause-and-effect essay to analyze delinquent behavior in teenagers	Writing task

A suggested teaching plan

Periods 1 & 2 Ss' online study	Ss are expected to complete the following activities on Ucampus	
	1	Watch the mini-lecture of Unit orientation .
	2	Think about the questions in Discussion point .
	3	Read the text in Academic exploration 1 and finish the tasks in Reading & understanding .
	4	Watch the mini-lecture of Getting the skill (AE1) (Identifying in-text referencing).
	5	Watch the video in Developing cultural awareness (AE1) (Chinese moral education).
	6	Read the text in Academic exploration 2 and finish the tasks in Reading & understanding .
	7	Watch the mini-lecture of Getting the skill (AE2) (Identifying cause and effect).
	8	Watch the mini-lecture of Critical thinking (AE2) (Strengthening an argument).
Periods 3 & 4 Classroom teaching	Discussion point & Academic exploration 1	
	Introduce the topic of the unit (Behavior) by dealing with Discussion point .	10 min
	Check Ss' understanding of the text; make text analysis of Reading 1; deal with Interpreting the text and Thinking critically .	25 min
	Check Ss' online study of Getting the skill (Identifying in-text referencing) by asking Ss to do the tasks.	10 min
	Deal with DCA (Chinese moral education) and assign Ss to do the mini-project.	10 min
	Academic exploration 2	
	Check Ss' understanding of the text; make text analysis of Reading 2; deal with Interpreting the text and Thinking critically .	25 min
	Check Ss' online study of Getting the skill (Identifying cause and effect) by asking Ss to do the tasks.	10 min
Periods 5 & 6 Classroom teaching	Critical thinking, DCA mini-project & Academic writing	
	Check Ss' online study of Critical thinking (Strengthening an argument) by asking Ss to do the tasks.	25 min
	Ask Ss to present their mini-projects to the class and make comments.	30 min
	Deal with Academic writing and ask Ss to finish the tasks.	25 min
	Wrap up the unit; assign Ss to finish the Writing task and do Review & check on Ucampus; assign Ss to do online study of Unit 4.	10 min

Note to teachers:

The teaching plan is designed for a six-period class. If there are eight periods, the T can spend more time on Reading 1 & 2, DCA mini-project and extension activities. If there are only four periods, the T may focus on one text.

Part 2 A detailed teaching guide

Discussion point

Teaching suggestions

- 1 Write “Stages of brain development” on the board and ask Ss to share with the class what they know about this topic.
- 2 Ask Ss to read through **The stages of brain development** infographic by themselves. Monitor their reading progress and clarify anything that they don’t understand.
- 3 Let Ss work in pairs to discuss the four questions below the infographic.
- 4 Ask 3–4 Ss to share their ideas on Question 2 and Question 3 with the whole class.
- 5 Give feedback on Ss’ answers to each question.

Reference answers

- 1 Yes, I am surprised by the fact that the brain shrinks by such a proportion as the body ages. The reason is that if the brain shrinks by 50%, perhaps we would lose many happy memories.
- 2 There exists a neurological explanation for the irrational teenage behavior.
- 3 No, we should not excuse teenagers for irrational behavior just because their brains are not fully developed. The reason is that both genes and environment play a role in human behavior. Teenagers’ irrational behavior could be caused by genetic makeup. It may also result from parental or peer influence. An overemphasis on genetic factors may lead to the neglect of environmental factors that might trigger or shape teenage behavior.
- 4 The more frequently we use our brain, the more active it will become. So, we can find ways to keep our brain working to slow the decline of our cognitive functions. For example, we can do reading regularly to exercise our brain.

Extension activity

Ask Ss to have a further discussion on Question 3 below the infographic. Ask 2–3 Ss who think that we should excuse irrational teenage behavior to justify their position with examples or other evidence. Then, ask one of those who hold a different view to present a counterargument.

Academic exploration 1

Reading 1

Teaching suggestions

- 1 Lead Ss into the topic of the text.
 - Write the word “crime” inside a circle in the middle of the board. Ask Ss to think about the question: What factors can lead a person toward crime? Ask 2–3 Ss to share their answers with the whole class.
 - Ask Ss to share with their partners how they understand the title of the text.
- 2 Check Ss’ online study by asking them to explain difficult language points in **Reading & understanding**.
- 3 Analyze the structure and writing style(s) of the text. (T may refer to **Text analysis**.)
- 4 Check Ss’ understanding of the text by asking them to answer the questions in **Interpreting the text**. Clarify what they don’t understand.
- 5 Ask Ss to read through the “Identifying in-text referencing” skill box in **Getting the skill**. Explain anything that Ss don’t understand in the box or in the mini-lecture with examples. Then, give Ss time to read through the text again to finish Task 1 (find at least two example sentences including in-text referencing from the text and explain how sources are cited). If time permits, ask Ss to finish Task 2 on Ucampus to better apply the skill of identifying in-text referencing.
- 6 Ask Ss to work in pairs and discuss the three questions in **Sharing your opinions**. Ask 3–4 Ss to share their views with the class.
- 7 Ask Ss to work in groups and discuss the question in **Showing inspirations**. Ask 2–3 groups to share their answers with the class. **主题陈述**
 - ✧ If time permits, ask Ss to finish the **Extension activity** in class after discussion.

Extension activity

This is a follow-up activity to the discussion in **Showing inspirations**. Ask Ss to work in groups to brainstorm the measures that can be taken to prevent crimes caused by environmental factors. Ask each group to write down the measures briefly and share their ideas on the discussion board of Ucampus. Ask Ss to make comments on other groups’ ideas and evaluate the feasibility of the suggested measures.

Text analysis

The text is a review of existing literature concerning the influence of genetic and environmental factors on criminality. Based on his or her critical review, the author concludes that although both genes and the environment are shown to play a role in criminality, to blame our genes for criminal behavior may lead to the ignorance of a broader societal responsibility to ensure that the environment in which we’re raised doesn’t promote criminal behavior.

The text is composed of seven paragraphs. Para. 1 is the introduction, leading the reader into the topic “are we born criminal.” Para. 7 is the conclusion in which the author summarizes research results and presents his or her view. Paras. 2–6 constitute the body of the text in which the author reviews theories and studies concerning the contributing factors of criminality.

The text sets an example for literature review, a critical skill for researchers. When reviewing previous research, the author usually introduces a theory or a study first, and then makes critical comments on it. For example, in Para. 3, the author first introduces “labeling theory,” and then makes comments on the theory, as shown in the last sentence of the paragraph “Critics of labeling theory argue that while the label may encourage later criminal behavior, it fails to consider the influence of genetic or environmental factors that must have led to the initial crime.” We can also find the same case in Para. 4. The author first introduces the “The Cambridge Study in Delinquent Development” (2013) and then makes critical comments on the study, as shown in the last sentence of the paragraph “While this [sic] data, and other studies like it, strongly imply that criminal parents are likely to produce criminal offspring, it remains unclear whether this intergenerational deviance is genetically determined or largely due to the environment in which we are raised.”

Language points

New words and expressions

savage

adj. very violent or cruel 凶猛的，残暴的

*When diagnosing someone as a “born criminal,” we don’t exactly have the option of opening their heads to find any tell-tale giveaway of their **savage** nature.* 当我们判断某人为“天生的犯罪分子”时，我们并不能真的剖开他的头颅，看看里面有什么揭露凶残天性的蛛丝马迹。

substantiate

vt. to prove the truth of sth. that someone has said, claimed, etc. 证实，证明

*There is little scientific evidence to **substantiate** the claims.* 几乎没有什么科学依据能证实这些主张。

hypothesize

v. to suggest a possible explanation that has not yet been proved to be true 假设，假定

*A researcher **hypothesized** that the average adult body temperature is lower than the often-advertised 98.6 degrees Fahrenheit.* 一位研究人员提出假设：成年人的平均体温低于通常宣传的 98.6 华氏度。

deviate

vi. to change what you are doing so that you are not following an expected plan, idea, or type of behavior 违背，偏离

*The investigation showed that the airplane had **deviated** from its scheduled route.* 调查显示，飞机已偏离其预定航线。

deviant

adj. different, in a bad way, from what is considered normal 偏常的，离经叛道的

deviance

n. [U] when sth. is different, esp. in a bad way, from what is considered normal 偏常，离经叛道

stationery

n. [U] materials that you use for writing, such as paper, pens, pencils, etc. 文具

*You can buy books and **stationery** from our campus bookstores.* 你可以从我们的校园书店购买书籍和文具。

elapse

vi. (*fml.*) if a particular period of time elapses, it passes (时间) 流逝，过去

*Because of the rain delay, half an hour had **elapsed** before the university baseball game began.* 因为降雨延迟，大学棒球赛不得不推迟了半个小时。

chronic

adj. (of any bad habit or behavior) that continues for a long time and does not seem to be easily stopped 难以根除的，积习难改的

*Many **chronic** offenders, also called habitual offenders, commit more than one type of crimes and commit their crimes in more than one area.* 犯罪成性者又叫惯犯，他们中有许多犯下不止一种罪行，而且会多地作案。

offspring

(*pl.* **offspring**) *n.* [C] someone's child or children 子女，子孙，后代

*Parents not only provide the rearing environment but also transmit 50% of their genes to their **offspring**.* 父母不仅为子女创造成长环境，还会各自遗传给子女 50% 的基因。

law-abiding

adj. respectful of the law and obeying it 守法的

abide

v. accept or obey sth. 接受，遵照

abide by

phr. v. to accept and obey a decision, rule, agreement, etc. even though you may not agree with it 遵从（决定）；遵守（法规）；信守（协议等）

*All contestants signed to promise to **abide by** the rules of the contest.* 全体参赛者均签字承诺遵守比赛规则。

nurture

n. [U] (*fml.*) the education and care that you are given as a child, and the way it affects your later development and attitudes (儿时所受的) 教育，教养

*The nature vs. **nurture** debate is one of the most enduring topics in the field of psychology.* 先天遗传和后天培养之争是心理学领域最经久不衰的话题之一。

hypothesis

(pl. **hypotheses**) *n.* [C] an idea that is suggested as an explanation for sth., but that has not yet been proved to be true
假设，假说

*The real value of **hypothesis** testing is that it allows professionals to test their theories and assumptions before putting them into action.* 假设检验的真正意义在于，专业人士可以借此检验他们的理论和假说，以便日后付诸实践。

concurrently

adv. existing or happening at the same time 同时发生地；并存地

*The particular situation may require that the steps be carried out **concurrently** rather than in sequential mode.* 在这个特定情况下，可能需要同时执行这些步骤，而非按照顺序依次执行。

distort

vt. to change sth. such as information so that it is no longer true or accurate 歪曲；曲解

*In academic study, any potential bias may **distort** the results of a research.* 在学术研究中，任何潜在的偏差都可能歪曲研究结果。

predisposition

n. [C] a tendency to behave in a particular way or suffer from a particular illness (行为方式的)倾向；易患某疾病的倾向（体质）

*Children who develop asthma might have a genetic **predisposition** to have the disease.* 患有哮喘的儿童可能具有易患哮喘的基因倾向。

integral

adj. forming a necessary part of sth. (用于构成整体)必需的，不可缺少的

*Physical education should be an **integral** part of the total education of every child.* 体育教育应成为每个孩子全面教育中不可缺少的一环。

criminology *n.* [U] 犯罪学

inception *n.* 开始，开端

theorist *n.* [C] 理论家

anthropological *adj.* 人类学的

criminality *n.* [U] 犯罪；犯罪行为

atavistic *adj.* 返祖性的；原始的

dexterity *n.* [U] 灵巧，熟练，敏捷；机敏

bloodshot *adj.* (眼睛)充血的，充满血丝的

hawk-like *adj.* 像鹰一样的

skull *n.* [C] 颅骨，头骨

innately *adv.* 天生地，与生俱来地

propensity *n.* [C] 倾向，习性

taxonomy *n.* [C, U] 分类学；分类法

physique *n.* [C] (人的)体格，体形

ectomorph *n.* [C] 瘦型体质(者)，外胚层体型(者)

mesomorph *n.* [C] 体育型体质（者），中型体质（者），中胚层体型（者）

endomorph *n.* [C] 胖型体质（者），内胚层体型（者）

discredit *vt.* 使不再相信（某种观点）；使丧失信誉

reprimand *vt.* 训斥，谴责

replicate *vt.* 重做；重复（某项科学研究）；复证（某个结果）

fatherhood *n.* [U] 父亲的身份或地位

delinquent *adj.* 违法的，不正当的

intergenerational *adj.* 跨代的，代与代之间的

identical (monozygotic) twins 单卵双生

fraternal (dizygotic) twins 异卵双生，二卵双生

upbringing *n.* [U] 养育；培养

willfully *adv.* 故意地，有意地

societal *adj.* 社会的；关于社会的

Proper names

Criminologia: Studio sul Delitto, Sulle sue Cause e sui Mezzi di Repressione 《犯罪学：对犯罪及其动机和遏制手段的研究》

Raffaele Garofalo 拉斐尔·加罗法洛（意大利律师、犯罪学家，现代犯罪学的创始人之一）

Cesare Lombroso 切萨雷·龙勃罗梭（意大利犯罪学家、实证主义犯罪学学派的创始人和主要代表人物，被许多犯罪学家称为“犯罪学之父”）

L'uomo Delinquente 《犯罪人论》

William Sheldon 威廉·谢尔登（美国医学教授和心理学家，提出一种体质类型理论）

Atlas of Men 《男性图鉴：成年男子体型分类指南》（书名全称为 *Atlas of Men: A Guide for Somatotyping the Adult Male at All Ages*）

Edwin M. Lemert 埃德温·M. 莱默特（美国加利福尼亚大学社会学教授，“标签理论”的代表人物之一）

University of California （美国）加利福尼亚大学

Social Pathology: A Systematic Approach to the Theory of Sociopathic Behavior 《社会病理学：一个关于反社会行为理论的系统化研究》

Howard Becker 霍华德·贝克尔（美国著名社会学家，“标签理论”的代表人物之一）

Outsiders 《局外人：越轨的社会学研究》（书名全称为 *Outsiders: Studies in the Sociology of Deviance*）

IQ 智商（intelligence quotient）

University of Queensland （澳大利亚）昆士兰大学

Difficult sentences

1 Instead, he developed a theory of anthropological criminology stating not only that criminality was inherited, but that criminals could be identified by a series of prominent physical defects which confirmed their atavistic and savage nature. (Para. 2)

此句为主谓宾结构，主干部分为 he developed a theory of anthropological criminology，现在分词短语 stating

not only that ..., but that ...作定语修饰 a theory of anthropological criminology, 作用相当于一个定语从句; 该分词短语中 not only ... but (also) ... 结构连接两个并列的宾语从句, that criminality was inherited 和 that criminals could be ..., 第二个宾语从句中又包括一个由 which 引导的定语从句, 修饰 physical defects。

2 The notion that physical appearance was innately bound to a propensity toward criminality was furthered by William Sheldon in *Atlas of Men* (1954), in which he proposed a taxonomy for categorizing the human physique. (Para. 2)

此句为主谓宾结构, 主干部分为 the notion was furthered by William Sheldon, that 引导的同位语从句对主语 the notion 进行解释说明, 后半句中 which 引导的定语从句修饰 *Atlas of Men*。

3 Other early theorists laid the foundations for the most prominent school of thought in the 50s and 60s—“labeling theory,” which hypothesizes that negative labels given to individuals by society actually promote deviant behavior. (Para. 3)

此句破折号后的部分为同位语, 对 the most prominent school of thought 进行解释说明。which 引导定语从句修饰 labeling theory, 其中 hypothesizes 后面是宾语从句 that negative labels ... promote deviant behavior, 过去分词短语 given to individuals by society 作定语修饰宾语从句的主语 negative labels。

lay the foundations / groundwork / base for ... 为……打基础
school of thought 思想流派

4 While this data, and other studies like it, strongly imply that criminal parents are likely to produce criminal offspring, it remains unclear whether this intergenerational deviance is genetically determined or largely due to the environment in which we are raised. (Para. 4)

此句为主从复合句, while 引导让步状语从句, 表示“尽管……”; 主句中的 it 为形式主语, 真正的主语为 whether 引导的名词性从句 whether this intergenerational deviance is ... raised。在该从句中又包括一个由 which 引导的定语从句, 修饰 the environment。

5 One area of research that tests this hypothesis compares the behavior of identical (monozygotic) twins—those sharing an identical genetic makeup—to that of fraternal (dizygotic) twins, who share, on average, 50% of the same genes. (Para. 6)

此句可以简化为 one area of research compares A to B, A 表示 the behavior of identical (monozygotic) twins, B 表示 the behavior of fraternal (dizygotic) twins。具体来看, 定语从句 that tests this hypothesis 修饰本句主语 one area of research; 在 compare A to B 结构中, 两个破折号之间的内容 those sharing an identical genetic makeup 是对 identical (monozygotic) twins 的解释说明; 后半句中, 第二个破折号后的 that 指代前半句中的 the behavior, who 引导的定语从句修饰 fraternal (dizygotic) twins, 也是对 fraternal (dizygotic) twins 的解释说明。

6 To blame our genes for criminal behavior willfully ignores a broader societal responsibility to ensure that the environment in which we're raised doesn't promote criminal behavior. (Para. 7)

此句主语为动词不定式短语 to blame our genes for criminal behavior, 第二个动词不定式短语 to ensure that ...

criminal behavior 作定语修饰 societal responsibility，对其进行解释说明；在 that 引导的宾语从句中，还包括一个定语从句 in which we're raised，修饰宾语从句的主语 the environment。

Reference answers

THINKING & EXPLORING

Interpreting the text

- 1 Researchers want to find out if there exists a connection between criminal tendencies and genetic inheritance.
- 2 At the end of Para. 2, the author comments that although the theories supporting the notion seem convincing, they have been widely doubted due to lack of evidence.
- 3 Primary deviance refers to an initial act that deviates from social norms; secondary deviance refers to further, repeated or more serious acts committed by those who are negatively labeled.
- 4 According to Para. 5, no conclusive proof exists concerning the correlation between intelligence and crime. While Moffitt et al. (1981) and Denno (1994) found a negative correlation between IQ and criminal behavior, Menard and Morse (1984) considered the association too weak.
- 5 Critics argue that poor research methodology and design of these studies may have distorted the findings.
- 6 In the text, when reviewing existing literature, the author tends to introduce the theory or study first, and then offers critical comments on it. For example, in Para. 3, the author first introduces the labeling theory and then provides critics' comments on the theory as shown in the last sentence of the paragraph. It is also the case with Para. 4. The author first introduces "The Cambridge Study in Delinquent Development" (2013) and then makes critical comments on the study, as shown in the last sentence of the paragraph.
- 7 According to the author, while research suggests a connection between criminality and genetic inheritance, upbringing also plays a critical role in the development of criminal tendencies. The author draws the conclusion by conducting a detailed and critical review of relevant existing literature.

Thinking critically

Sharing your opinions

- 1 I agree with the author. Theories are only scientific hypotheses proposed to answer research questions. Hypotheses have to be tested before they are accepted as truth. Since no evidence has been found to prove these theories, it is not surprising that they are not widely accepted.
- 2 Yes, I agree that negative labels given to individuals by society actually promote deviant behavior. For example, if a person was negatively labeled as "a troublemaker," he or she might be influenced by the label, not willing to engage in any activities or offer any help. One of my childhood experiences helps illustrate this. The only thing different is that I was given a positive label. I was called "a good helper" by my parents when I did something for them, such as handing them their slippers or a cup of tea. I felt happy and wanted to be praised again and again, thus developing the habit of helping others. When I grow up, I become "a good helper" of my friends, my teachers and even strangers.

- 3 Personally, I think nurture plays a more important part in human behavior. When I was in the kindergarten, I began to be aware of my poor limb motor coordination. I just could not dance as gracefully as other children. My parents said I inherited stiff muscles and bone types from them, but they didn't just let it be. They began to train my body's flexibility under the guidance of a friend who happened to be a fitness expert. Now, after years of training, although I am not qualified to become a professional dancer, I have successfully become a member of the Campus Street Dance Association of my university. Don't you think nurture plays a more important role in shaping our behavior?

Showing inspirations

The family environment. The family environment is critical to the upbringing of a child. It is said that parents are children's first teachers. If problems such as family violence occur, children are most likely to suffer the consequences, and may perform criminal behavior when they grow up. Actually, how we are raised in childhood has a huge influence on how we behave.

Negative social environment. A person can be judged by the company he or she keeps. This explains the importance of the social environment we live in. A negative social environment, for example, a neighborhood with high rates of crime, can increase the chances of criminal behavior.

School bullying. Bullying has huge and profound psychological effects on both those who bully and those who are bullied. Research suggests that school bullying is an important factor that leads to criminal behavior later in life.

Getting the skill

1

Example 1: *Howard Becker further developed this notion in his 1963 publication, Outsiders, claiming that while society labels people as criminals to justify its condemnation, the deviants themselves use the label to justify their criminal behavior. Essentially, they commit further criminal offenses because it's simply "who they are."* (Para. 3)

In Para. 3, Howard Becker's 1963 publication, *Outsiders*, is cited to further introduce the labeling theory. Both direct quoting and paraphrasing are used in this reference. Specifically, the author quotes "who they are" from the original source, and paraphrases Becker's claim in his own words.

Example 2: *Moffitt et al. (1981) found that men with a lower IQ went on to commit two or more crimes by the age of twenty.* (Para. 5)

In Para. 5, the result of the study by Moffitt et al. (1981) is cited by paraphrasing to support the claim that there is a correlation between criminal behavior and intelligence.

2 Ucampus online course

Please refer to **Practicing the skill 2** in **Getting the skill**.

Ucampus online course

READING & UNDERSTANDING

Understanding the text

Comprehension 1

Match the headings (A–G) to paragraphs (1–7).

- | | |
|-------------|--|
| Para. 1 (G) | A. Paternal influence on criminal tendency |
| Para. 2 (D) | B. Nature or nurture? |
| Para. 3 (E) | C. The correlation between intelligence and crime |
| Para. 4 (A) | D. A biological predisposition toward criminality |
| Para. 5 (C) | E. Society's influence on self-identity and behavior |
| Para. 6 (F) | F. Siblings, genetics, and upbringing |
| Para. 7 (B) | G. What is criminology? |

Comprehension 2

Match the arguments (1–6) to the sources (A–I) used to support them in the text.

- A. *Social Pathology: A Systematic Approach to the Theory of Sociopathic Behavior* (1951) by Edwin M. Lemert
- B. *Atlas of Men* (1954) by William Sheldon
- C. *L'uomo Delinquente* by Cesare Lombroso
- D. Moffitt et al. (1981)
- E. "The Cambridge Study in Delinquent Development" (2013)
- F. *Outsiders* (1963) by Howard Becker
- G. "The Minnesota Twin Family Study" (2002)
- H. Menard and Morse (1984)
- I. Denno (1994)

- 1 Criminal tendencies are directly associated with physical attributes. (B C)
- 2 Labeling someone a criminal often inspires further deviant behavior. (A F)
- 3 Criminal fathers are more likely to produce criminal offspring. (E)
- 4 There is a clear association between criminal behavior and intelligence. (D I)
- 5 The correlation between criminal tendency and IQ is statistically insignificant. (H)
- 6 Twins raised in different environments have similar personalities. (G)

Language focus

Words in use

Complete the sentences with the words and phrase below. Change the form if necessary.

abide by	concurrently	deviate	elapse
hypothesis	integral	offspring	substantiate

- 1 Up to now, unfortunately, no scientific evidence has been found to substantiate the theory.
- 2 According to the experiment instructions, as soon as the 15 seconds' rest has elapsed, students must start the next exercise.
- 3 In particular the young people who deviate from society's values must be brought back into line.
- 4 The current study aims to investigate the possible influence of parental factors on offspring / offspring's gambling behavior.
- 5 It is the moral duty of all citizens to abide by traffic rules for their own and others' safety.
- 6 The decision to take two or more drugs concurrently must be made under the guidance of a doctor.
- 7 In scientific research, the statistics to prove or disprove a(n) hypothesis will take years to collect.
- 8 The theorist claims that society plays a(n) integral role in the development of criminal tendencies.

Translation

Translate the following sentences into Chinese. Pay attention to the words in bold.

- 1 Scientists have long **hypothesized** a connection between childhood experiences and adult criminal behavior, which can be supported by the research on lead's (铅) effects on the brain which suggests that childhood exposure is linked to criminal acts in adulthood.
科学家们很早就提出假说, 童年经历与成年后的犯罪行为之间存在关联。有关铅对大脑的影响的研究可以佐证这一假说, 研究表明童年时接触铅与成年后的犯罪行为有关联。
- 2 If respondents lack cooperativeness in a survey, research results will be **distorted** and thus not convincing, and thus all interviewers, before conducting an interview, should receive interviewing skills training to improve respondent cooperation.
如果受访者在调查中不配合, 研究结果就会被歪曲, 从而丧失说服力。因此, 所有采访者在访谈前都应该接受访谈技能训练以提升受访者的配合度。
- 3 Human behavior is subject to genetic variations. The ways in which individuals differ in their intellectual abilities, personalities, and mental health are, to a large extent, functions of their inherited genetic **predispositions**.
人类行为受到基因变异的影响。个体在智力、性格和心理健康方面的差异在很大程度上是由其遗传的基因倾向造成的。
- 4 Maybe it's reasonable to say that the nature vs. **nurture** debate is not important—that regardless of the truth, every child deserves the opportunity to be successful. In this case, parents should choose to focus on nurture.
也许这么说是合理的, 先天和后天之争不重要, 不管真相如何, 每个孩子都应有成功的机会。就这一点而言, 父母应该选择关注后天培养。

- 5 The aim of this paper is to delve into (钻研) the psychology of **chronic** offenders by exploring not only their criminal careers but also their life stories.

本文旨在通过探究惯犯的犯罪经历和生平来深入研究他们的心理。

THINKING & EXPLORING

Getting the skill

Practicing the skill 2

Read the following paragraph. Find the in-text references and identify the way(s) sources are cited.

A prerequisite for successful social interactions and mental well-being is empathy, the ability to share the other's feelings (Hein & Singer, 2008). The developmental emergence of empathy was studied by Knafo and colleagues (Knafo et al., 2008b), who examined the contribution of genes and environment to an empathy factor in 409 pairs of young twins. No genetic influences were found at 14 and 20 months, while strong shared environmental influences accounted for most of the variance. However, at 24 and 36 months, genetics accounted for 34%–47% of the variance in the common empathy factor, while shared environment effects decreased from 0.69 at 14 months to 0 at 36 months. Overall, genetics accounted for both change and continuity in empathy, but their role changed as children grew up. In another twin study at 3.5 years of age, moderate heritabilities were estimated for individual differences in empathy, and the rest of the variance was accounted for by nonshared environment (Knafo et al., 2009).

Reference answer:

Three in-text references are found in the paragraph: Hein & Singer, 2008; Knafo et al., 2008b; Knafo et al., 2009. For the first reference, paraphrasing is used to give the definition of empathy; for the second reference, paraphrasing is used to introduce the study on empathy; for the third reference, paraphrasing is used to cite ideas from the study of Knafo et al. (2009).

Developing cultural awareness

Teaching suggestions

- 1 Check Ss' online study by asking them to summarize the main points of the video.
- 2 Ask Ss to work in groups to discuss the questions on Page 60 of the Student Book and choose 2–3 groups to share their ideas with the whole class.
✧ If time permits, ask Ss to finish the **Extension activity**.
- 3 Assign the mini-project to Ss. Explain the requirements of the project. Ask Ss to work in groups to prepare for the project after class and get ready to present their e-posters in the next class. Remind Ss that they should not only include all the elements required in the poster, but also add a visual design to make it eye-catching. Highlight that Ss should ensure accuracy concerning the translation of the Chinese quote. **小组互评作业**
- 4 **(In Periods 5 & 6)**
If time permits, ask each group to present and illustrate their design to the class, explaining the meaning of the quote, and the reason why they choose the quote and the picture to match it. After all groups finish their presentations, ask Ss to vote for the “Best 10” posters. Give feedback on Ss' posters. If time is not enough, ask Ss to share their work on Ucampus and vote for the “Best 10” before class. Ask those who have designed the “Best 10” to make presentations in class. Give feedback on each group's performance.

Extension activity

The fundamental role of universities is to cultivate students with good values and moral integrity. Universities in China have always stressed the importance of education on virtue and morality, and placed moral education at the center. Ask Ss to work in groups and share how moral education has been implemented in the university. Ask 1–2 groups to share their ideas with the whole class. Then, invite feedback from other groups.



1. The nature-nurture debate

Are we born good or evil? In the debate on human morality, opposing views have been held throughout Chinese history. While Mencius argued for the innate goodness of human nature, Xunzi (荀子) maintained that basic human nature is evil, and good conduct must always be learned. Though agreement on this age-old debate was not possible, the importance of nurture and moral education has been asserted, thus forging traditional Chinese virtues such as diligence, patriotism, honesty, perseverance, and a sense of responsibility.

2. Traditional ideas of moral education

The significance of moral education

In traditional Chinese culture, great importance has been attached to moral education. Chinese people believe that not only high academic standards but good personal traits should be cultivated. The classic Chinese text *Sanzijing* (《三字经》) evaluated the situation this way: “Man on earth, Good at birth. The same nature, Varies on nurture. With no education, There'd be aberration.” (人之初，性本善。性相近，习相远。苟不教，性乃

迁。)

Besides fostering individual development, moral education brings social benefits, facilitating societal and national development. This is perfectly reflected in the words of Mencius: “Good government does not lay hold of the people so much as good instructions. Good government is feared by the people while good instructions are loved by them. Good government gets the people’s wealth while good instructions get their hearts.” (善政，不如善教之得民也。善政民畏，善教民爱之；善政得民财，善教得民心。)

What to teach

According to Confucius, the philosopher and educator, the goal of moral education is to cultivate a *junzi* (君子), a virtuous, capable man who could undertake a historic mission benefiting society and the nation. To cultivate a person to be a *junzi*, a moral exemplar, the teacher should help him learn the qualities of benevolence, integrity, forgiveness and courage. Among these virtues, *ren* (仁), benevolence or humanity, is central to moral education. The basic meaning of *ren* is loving others. To love others, one should first show filial piety to one’s parents and respect elder brothers, then extend love and care to other family members and, ultimately, to everyone else in the world. While *ren* is the inner, substantial goodness of the human being, *li* (礼) is the functioning of *ren* in the manifest world. As the external form of *ren*, *li* refers to rule-governed conduct and proper behavior. In Confucius’ words, a *junzi* is a completely virtuous person who behaves according to the rules of etiquette.

How to teach

To improve a person’s moral qualities, teachers and educators in Chinese history have accumulated many effective methods. Because it is impossible to separate an understanding of moral principles from their application, Confucius emphasized practical action: “He who acts vigorously is near benevolence.” Zengzi (曾子), a student of Confucius, advocated introspection, meaning constantly examining one’s words and deeds. He said, “Each day I reflect on myself several times: Have I tried all my best to help someone when offering advice to him? Have I kept my word to my friends? Have I reviewed what I learned?” (吾日三省吾身：为人谋而不忠乎？与朋友交而不信乎？传不习乎？) This method depends on self-cultivation and self-motivation.

3. Moral education in the new era

In modern times, moral education adapted to current conditions. Renowned Chinese educator Tao Xingzhi (陶行知) stated in a lecture in 1925 that young individuals should learn to be a whole person with a healthy body, independent mind and self-reliant career. The principle of learning is to revere freedom in the pursuit of truth and to view being an authentic person as the ultimate goal.

Since the implementation of the reform and opening-up policy in 1978, China has cultivated a new generation with “four qualifications (“四有” 新人).” The goal of their moral education is lofty ideals, moral integrity, good education and a strong sense of discipline (有理想、有道德、有文化、有纪律). As a comprehensive well-off society has been successfully built, China now enters a new era in which national rejuvenation becomes a historic mission. Besides traditional virtues, the focus of moral education moves forward to cultivate talent with the qualities of patriotism, innovation, truth-seeking, and dedication among youth. They are confident in Chinese culture, proud of their identity as Chinese people, and loyal to the nation. There is no doubt that you are one of them.

Words and expressions

assert v. (坚决) 主张

aberration n. 反常；异常

exemplar n. 模范；典型

benevolence *n.* 仁慈, 仁爱
manifest *adj.* 显而易见的, 明显的
etiquette *n.* 礼仪, 礼节
introspection *n.* 内省, 反省
renowned *adj.* 有名望的, 著名的
self-reliant *adj.* 自力更生的, 依靠自己的
revere *v.* 崇敬, 尊敬
lofty *adj.* 高尚的, 崇高的
rejuvenation *n.* 复兴
filial piety 孝道

Reference answers

Answers may vary.

- 1 The importance of nurture and moral education has been asserted, thus forging traditional Chinese virtues such as diligence, patriotism, honesty, perseverance, and a sense of responsibility. Moral education not only helps to cultivate good personal traits, but also brings social benefits, facilitating societal and national development.
- 2 According to Confucius, the goal of moral education is to cultivate a *junzi*, a virtuous, capable man who could undertake a historic mission benefiting society and the nation. To cultivate a person to be a *junzi*, a moral exemplar, the teacher should help him learn the qualities of benevolence, integrity, forgiveness and courage. Among these virtues, *ren*, benevolence or humanity, is central to moral education.
- 3 To improve a person's moral qualities, teachers and educators in Chinese history have accumulated many effective methods. Because it is impossible to separate an understanding of moral principles from their application, Confucius emphasized practical action. Zengzi advocated introspection, meaning constantly examining one's words and deeds.
- 4 As a comprehensive well-off society has been successfully built, China now enters a new era in which national rejuvenation becomes a historic mission. Besides traditional virtues, the focus of moral education moves forward to cultivate talent with the qualities of patriotism, innovation, truth-seeking, and dedication among youth. They are confident in Chinese culture, proud of their identity as Chinese people, and loyal to the nation.

Academic exploration 2

Reading 2

Teaching suggestions

- 1 Introduce the topic of the text by following the steps below:
 - Write the following words on the board: teenagers + teenage behavior.
 - Ask Ss to share what comes to mind and write down one or two examples that could be considered stereotypes.
 - Give Ss time to work alone and ask them to write three more stereotypes about teenagers and how they behave.
 - Divide Ss into groups to compare their ideas. Encourage them to explain why they think these stereotypes exist and what could be done to change people's stereotyped thinking.
- 2 Check Ss' online study by asking Ss to explain difficult language points in **Reading & understanding**.
- 3 Analyze the structure and writing features of the text. (T may refer to **Text analysis**.)
- 4 Check Ss' online study by asking them to answer the questions in **Interpreting the text**.
- 5 Ask Ss to work in pairs and discuss the questions in **Sharing your opinions**. Ask 2–3 Ss to share their views with the whole class. Make comments on their ideas.
- 6 Ask Ss to work in groups and discuss the questions in **Showing inspirations**. Ask 2–3 groups to share their ideas with the class. Give feedback on their ideas. **主题陈述**
 - ✧ If time permits, ask Ss to finish the **Extension activity**.
- 7 Check Ss' online study of **Getting the skill** by asking them to write down signal words and phrases for cause and effect. Ask Ss to do Task 1 and, if time permits, complete Task 2 on Ucampus. Give whole-class feedback.

Extension activity

Ask Ss to work in small groups to imagine how an academic institution might adapt to suit the different stages of brain development (focusing specifically on changes during adolescence). Write the following questions on the board to guide their discussion:

- What would the academic institution be like?
- What would the rules be?
- Who would work there?
- What would students study?

Ask each group to present their ideas. After one group's presentation, encourage Ss from other groups to ask follow-up questions, probing the practicalities of such an institution.

Text analysis

The text includes a review of research to respond to the question: What is the neurological explanation for the seemingly erratic teenage behavior? Based on his or her review, the author suggests that since the brain is still

in development during adolescence, key decisions should be delayed until later life when people are better able to balance risk and logical decision-making more effectively.

The text consists of six paragraphs. Para. 1 leads the reader into the topic of neurological factors and teenage behavior. Para. 6 concludes the text, summarizing the neurological factors that influence adolescent behavior and offering a suggestion that key decisions be delayed until later life. Paras. 2–5 constitute the body part, in which the author reviews studies that reveal the relationship between neurological influences and teenage behavior.

One feature of the text is the use of definitions to help explain technical terms. In a text focusing on neurological influences on behavior, it is inevitable to involve technical terms which readers might be unfamiliar with. In the text, the author provides definitions to help readers understand the technical terms. We can find this feature in the following examples. Pay attention to the technical terms in bold and the underlined parts.

- Perhaps the most often cited cause of stereotypical teenage behavior is the underdevelopment of the **prefrontal cortex**—the section of our brains that governs impulses and emotions, and makes rational decisions. (Para. 2)
- However, the ability of teenagers to make rational decisions is overridden by the rush of **dopamine**—the hormone which triggers feelings of happiness—that occurs when they take risks. (Para. 3)
- Furthermore, the **nucleus accumbens**—the part of the brain that seeks pleasure and reward—is reasonably well established in the teenage brain, and actually seems to directly compete with the prefrontal cortex in the decision-making process. (Para. 3)
- While this may be true in heated or stressful situations, perhaps because they tend to rely on the **amygdala**—the part of the brain that guides instinct—rather than the prefrontal cortex, in neutral situations adolescents are actually better equipped to control impulses and make rational decisions than adults. (Para. 4)

Language points

New words and expressions

adolescence

n. [U] the time, usu. between the ages of 12 and 18, when a young person is developing into an adult 青春期

*The major contributors to health problems during **adolescence** are not disease or illness, but are behavioral, and frequently the result of risky decision-making.* 造成青春期健康问题的主要因素不是疾病，而是行为层面的，且往往是莽撞决策的后果。

foolhardy

adj. taking stupid and unnecessary risks 鲁莽的，有勇无谋的

*There is nothing to be gained by taking **foolhardy** risks, especially for young people who may not yet be masters of their own decision-making.* 采取鲁莽的冒险行动一无是处，对于或许还不能自主决策的年轻人来说尤为如此。

rationality

n. [U] the ability to think clearly and make decisions based on reason rather than emotions 理性

*A new study suggests not only that society should give adolescents more credit for **rationality**, but also that parents should help children hone their cost-benefit analysis skills in making real-life decisions.* 一项新的研究表明，不仅社会应更多地肯定青少年的理性，现实生活中做决策时，父母也应帮助孩子训练成本效益分析技能。

erratic

adj. sth. that is erratic does not follow any pattern or plan but happens in a way that is not regular 不规则的；不确定的；不稳定的

*Advances in brain research have shown that hormones are not the only explanation for **erratic** adolescent behavior.* 大脑研究的进展表明，荷尔蒙并不是青少年行为不稳定的唯一原因。

junction

n. [C] a place where one road, track, etc. joins another; a place or point where two or more things meet or converge (公路或铁路的) 汇合处，枢纽站；连接点，接合处

*Our body has nerve **junctions**—the places where our nerves come together.* 我们体内的神经接点是神经交汇的地方。

trim

vt. 1 to make sth. look neater by cutting small pieces off it 修剪

***Trimming** a tree to remove diseased or dead limbs is an effective way to keep trees healthy.* 修剪病变或枯死的树枝是使树木保持健康生长的有效方法。

2 to reduce a number, amount, or the size of sth. 缩减

*The company is planning to **trim** its marketing budget for next year.* 这个公司计划缩减明年的营销预算。

adolescent

n. [C] a young person, usu. between the ages of 12 and 18, who is developing into an adult 青少年

*Brain science has changed the way we think about risk-taking of the **adolescents**.* 脑科学改变了我们对青少年冒险行为的认知。

override

vt. 1 to use your power or authority to change sb. else's decision (以权力或权威) 撤销，否决，推翻 (别人的决定)

*Studies have found that individuals with aggressive traits are more likely to **override** or reject a decision if they are more powerful than the person who originally made the decision.* 有研究表明，如果比最初做出决定的人权力更大的话，具有攻击型性格特征的人更有可能否决或拒绝接受某个决定。

2 to be regarded as more important than sth. else 比……更重要；优先于

*The academics found that our awareness of other senses will be reduced if we focus strongly on a visual task, which means responses of the visual field **override** other senses.* 学者们发现，如果我们的注意力主要集中在视觉任务处理上，其他感官的感觉意识就会减弱，也就是说，视觉反应凌驾于其他感觉反应之上。

coincide

vi. 1 if two people's ideas, opinions, etc. coincide, they are the same （两人的想法、观点等）一致，相符

*Our views don't always **coincide**, but we always voice our opinions.* 我们的观点并不总是一致，但我们总会表达自己的观点。

2 to happen at the same time as sth. else, esp. by chance 同时发生（尤指巧合）

*In order to have the perfect vacation, my work schedule needs to **coincide** with my wife's schedule.* 为了享受完美假日，我的工作日程需要配合我妻子的日程安排。

temptation

n. [C, U] a strong desire to have or do sth. even though you know you should not 诱惑；引诱

*Imagine you are overweight and you spot your favorite pastry in the storefront of a bakery. How do you manage to resist this **temptation**?* 不妨想象一下，体重超标的你在烘焙店的铺面前看到了最爱吃的糕点，你会如何设法抵制诱惑呢？

intervene

vi. to become involved in an argument, fight, or other difficult situation in order to change what happens 干预，介入，插手

*It is appropriate to **intervene** when we see a parent or caretaker being physically violent or verbally abusive.* 如果我们遇到父母或看护人正在施加肢体或语言暴力，就应该进行干预。

outweigh

vt. to be more important or valuable than sth. else （在重要性、益处、意义等上）重于，大于，超过

*A recent survey found that more than four out of five parents believe the benefits of sports participation **outweigh** the risks, although their concerns over children's safety still run high.* 近期一项调查发现，有超过八成的父母认为参加运动的益处大于风险，尽管他们仍十分担心孩子的安全。

analogy

n. [C, U] a comparison between two situations, processes, etc. that seem similar, or the process of making this comparison 类比；比拟

A useful **analogy** is to think of a neuron as a tree. A neuron has three main parts: dendrites, an axon, and a cell body, which can be represented as the branches, roots and trunk of a tree, respectively. 我们不妨把神经元比作一棵树。神经元有三大主要部分：树突、轴突及细胞体，可分别将其比作树枝、树根和树干。

suppress

vt. to prevent sth. from growing or developing, or from working effectively 抑制（生长、发展、起作用等）

A new research shows that it's better to express negative emotions in a healthy way than to **suppress** them. 新的研究表明，以健康的方式表达负面情绪要比抑制它们好。

burgeoning

adj. growing, expanding, or developing rapidly 迅速生长的；快速发展的

My desire to better understand my daughters and to be a good father has led me to follow with great interest the **burgeoning** area of adolescent brain development. 我渴望更好地了解我的女儿们，当个好父亲，这使我怀着极大的兴趣跟进青少年大脑发育这一迅速兴起的领域。

cusp n. [C] 交界点，转折点，过渡点

on the cusp of 处于某事即将发生变化的时刻

headlong adv. 轻率地，仓促地

neurological adj. 神经系统的；神经学的

underdevelopment n. [U] 发育不全；欠发达

prefrontal cortex 前额叶皮质

neuronal adj. 神经元的

synapsis (pl. **synapses**) n. [C] 突触

neuroscience n. [U] 神经科学

synaptic pruning 突触修剪

synaptic adj. 突触的；与突触有关的

underutilized adj. 未充分利用的，未有效使用的

frontal lobe 大脑额叶

prune vt. 修剪；缩减

underdeveloped adj. 发育不全的；欠发达的

dopamine n. [U] 多巴胺

hormone n. [C] 激素；荷尔蒙

nucleus accumbens 伏隔核

hard-wired adj. 与生俱来的，基因决定的

oversimplification n. [U] 过于简单化

amygdala n. [U] 杏仁核

influx n. [C] 涌入；流入

Proper names

fMRI (functional magnetic resonance imaging) 功能性磁共振成像

Cornell University (美国) 康奈尔大学

University of Virginia (美国) 弗吉尼亚大学

Difficult sentences

1 They are expected to make decisions that will profoundly affect the rest of their lives at a time when they seem particularly incapable of rationality—often throwing themselves headlong into dangerous or risky situations. (Para. 1)

此句破折号之前的半句中，that引导定语从句that will profoundly affect the rest of their lives修饰decisions，说明要做出的决定影响深远，at a time when ... rationality在前半句中作状语，表示做出决定的时间，其中when引导的定语从句修饰time，具体描述这一时期的特点，即青少年似乎非常难以保持理性的阶段；破折号之后的半句是现在分词短语throwing ... 作结果状语，对前半句进行补充说明。

2 During childhood, we accumulate an overabundance of synapses, and as we move into adolescence over half are systematically removed, while others are strengthened in order to make communication more efficient—a process known in neuroscience as “synaptic pruning.” (Para. 2)

此句中，over half指代over half of the synapses，others指代other synapses；过去分词短语known in neuroscience ... 作定语修饰process。

3 However, the ability of teenagers to make rational decisions is overridden by the rush of dopamine—the hormone which triggers feelings of happiness—that occurs when they take risks. (Para. 3)

此句为主谓宾结构the ability of teenagers to make rational decisions is overridden by the rush of dopamine，谓语为被动语态，主语the ability of teenagers to make rational decisions较长，其中动词不定式短语to make rational decisions作定语修饰ability，表示做出理性决策的能力；两个破折号中间的部分the hormone which ... happiness是一个插入语，用来解释说明dopamine；that引导的定语从句修饰the rush of dopamine，表明多巴胺激增在冒险的情况下会发生。

4 When no emotional information was present (i.e. the facial expression was neutral), teenagers performed as well as adults, if not better. (Para. 4)

此句为主从复合句。主句teenagers performed as well as adults, if not better中，if not的意思是to suggest that sth. may be even larger, more important, etc. than was first stated，表示相比于前者，后者可能更大或更重要等，所以主句等同于teenagers performed as well as adults; they may perform even better than adults，青少年的表现和成年人一样好，甚至可能比成年人更好。

5 While this may be true in heated or stressful situations, perhaps because they tend to rely on the amygdala—the part of the brain that guides instinct—rather than the prefrontal cortex, in neutral situations adolescents are actually better equipped to control impulses and make rational decisions than adults. (Para. 4)

此句为主从复合句，较为复杂。主句in neutral situations adolescents ... than adults，主语为adolescents，与more than比较结构中的adults相对应；while引导的让步状语从句较长，其中because引导的原因状语从句对this may be true in heated or stressful situations进行解释，说明“青少年总是无法理性行事或做出正确的决定”这种说法在面临激烈或紧张的情况时可能是正确的，原因是青少年倾向于依赖杏仁核（the amygdala）而非依赖前额叶皮质（the prefrontal cortex）来做决定，the amygdala与the prefrontal cortex对应，两个破折号之间的插入语是对amygdala含义的解释；in heated or stressful situations与主句中in neutral situations对应，对比青少年在两种情况下的不同行为。

6 It's also worth considering that while adolescent brains may still be in development, our ability to plan and recall events, as well as task coordination actually begins to decline fairly rapidly in our mid to late twenties. (Para. 5)

此句的真正主语为that引导的从句that while adolescent brains ... to late twenties，为避免句子头重脚轻，it作为形式主语置于句首。而该主语从句中又包括一个由while引导的让步状语从句，主句的主语为our ability to plan and recall events和task coordination，由as well as连接。在A as well as B这一结构中，谓语动词的形式与as well as前面的主语即A的单复数保持一致，因此在这个句子中，主语our ability为单数，谓语动词用begins。

7 Yet, perhaps this increased propensity for risk-taking should be seen as beneficial as it is undoubtedly one of the factors that drive adolescents to seek out the kind of new experiences that might shape their careers. (Para. 6)

此句为主从复合句，结构较为复杂。主句为 perhaps this increased propensity for risk-taking should be seen as beneficial，后接 as 引导的原因状语从句 as it is undoubtedly ... shape their careers。先来看主句，主语 this increased propensity for risk-taking，谓语为被动语态 should be seen as，其中(sth.) be seen as ... 为固定搭配，表示“（某事）被看待为……；（某事）被认为是……”，它后面由 as 引导的原因状语从句则解释了这句话的原因。接着我们再来看从句，在这个状语从句中，句子主体为主系表结构 it is undoubtedly one of the factors，主语 it 指代 this increased propensity for risk-taking，that 引导的定语从句 that drive adolescents ... their careers 修饰 one of the factors，用来解释究竟是什么样的因素。

8 Having said that, it could also be argued that as the brain is still in development during this period, key decisions should be delayed until later life—when we are better able to balance risk and logical decision-making more effectively. (Para. 6)

现在分词短语Having said that起承接上句的作用，表转折，意思是“话虽如此”，其中that指代上句。it为本句形式主语，真正的主语为that引导的从句that as the brain ... more effectively。在该从句中，又包括一个由as引导的原因状语从句，主句为key decisions should be ... more effectively，其中破折号后面是由when引导的定语从句修饰later life，说明推迟到的时间究竟是什么时候，即“我们能更有效地权衡风险、做出理性决策的时候”。

9 Given that the desire to seek out risk and short-term rewards is so strong, this is perhaps not the best time to make decisions that will profoundly affect the rest of our lives. (Para. 6)

此句中，given that ... 意为 taking ... into consideration, considering “考虑到……”，此处用于引导条件状语

从句；在主句中，that 引导的定语从句修饰 decisions，说明这些决定将对余生产生深刻的影响。

Reference answers

THINKING & EXPLORING

Interpreting the text

- 1 The author uses different expressions to describe the stereotypical teenage behavior in Para. 1, like “self-possessed one minute and foolhardy the next,” “all gasoline, no brakes, and no steering wheel,” “particularly incapable of rationality” and “erratic.”
- 2 The pronoun “this” refers to the oversimplification mentioned in the preceding sentence that teenagers are generally unable to act rationally or make good decisions.
- 3 The author cites the study to support the argument that our ability to plan and recall events, and to coordinate tasks begins to decline rapidly in our mid to late twenties.
- 4 The seemingly erratic teenage behavior does not necessarily mean that teenage brains are born to be impulsive. According to research results cited in the text, neurologically, teenage brains are capable of effective decision-making and self-control, but factors such as synaptic pruning, regular influxes of dopamine and the competition between the prefrontal cortex and the brain’s reward center affect their ability to make rational decisions.
- 5 The author considers the propensity toward risk-taking beneficial, because it is one of the factors that drive adolescents to seek out the kind of new experiences that might shape their careers.
- 6 By saying so, the author suggests delayed decision-making on the part of adolescents.

Thinking critically

Sharing your opinions

- 1 Yes, I agree with the author at this point. As research suggests that adolescents tend to be impulsive and make irrational decisions on some occasions, it will be better for them to delay key decisions until later life to avoid irreversible regrets in life.
- 2 When I was in junior high school, for a time, I indulged myself in adventure books and considered it cool to explore the unknown world. My best friend and I secretly planned a trip to the mountain not far from the city I lived in. Then, one day during the summer holiday, we set out to the mountain and decided to get to the mountain top through a path barely trodden by others. The result was we two got lost in the mountain and had to wait for help. If I were more rational, I would have been better aware of the risk of trying a new path in unfamiliar place.
- 3 I do find a change in myself when making decisions. When I was a teenager, I considered more about my interest when making decisions. It is just like this: if you like it, go for it. Now, however, as an adult, I will consider my interest, the practicalities and consequences before making a decision. In one word, I become more rational now. After reading the text, I get to know that maturity comes also as a result of brain development.

Showing inspirations

- 1 Research suggests that brain development plays a role in teenage irrational and deviant behavior. The adolescent brain is still developing and not yet fully mature. In particular, the prefrontal cortex—the section of our brains that governs impulses and emotions, and makes rational decisions—is underdeveloped. The underdevelopment of the prefrontal cortex, however, does not necessarily mean that teenagers are not capable of making rational decisions. Research shows that the prefrontal cortex is still active in the adolescent brain, but the ability of teenagers to make rational decisions is overridden by the rush of dopamine—the hormone which triggers feelings of happiness—which occurs when they take risks. Furthermore, the nucleus accumbens, the part of the brain that seeks pleasure and reward, is well established in the teenage brain, and actually seems to directly compete with the prefrontal cortex in the decision-making process. Research also reveals that in heated or stressful situations, teenagers tend to rely on the amygdala, the part of the brain that guides instinct, rather than the prefrontal cortex in decision-making. In such situations, teenagers are generally unable to act rationally or make good decisions.
- 2 The following advice may be of help to parents:
 - Educate yourself. Read books about teenagers and know more about the adolescent period.
 - Spend some individual time with your children, talk to them early about adolescence and share memories of your own adolescence.
 - Put yourself in your kid's place. Think twice before you object if your kid wants to wear funky clothes.
 - Respect your kid's privacy. To help your teen become a young adult, you'll need to grant some privacy.

Getting the skill

1

- Perhaps the most often cited cause of stereotypical teenage behavior is the underdevelopment of the prefrontal cortex—the section of our brains that governs impulses and emotions, and makes rational decisions. (Para.2)
- According to Luna et al. (2010), synaptic pruning is not the only factor that distinguishes adolescent brains from their adult counterparts. (Para. 3)
- However, the ability of teenagers to make rational decisions is overridden by the rush of dopamine—the hormone which triggers feelings of happiness—that occurs when they take risks. (Para. 3)
- However, synaptic pruning, regular influxes of dopamine, and the competition between the prefrontal cortex and the brain's reward center all affect the ability of teenagers to make clear, rational decisions. (Para. 6)
- Yet, perhaps this increased propensity for risk-taking should be seen as beneficial as it is undoubtedly one of the factors that drive adolescents to seek out the kind of new experiences that might shape their careers. (Para. 6)

2 Ucampus online course

Please refer to **Practicing the skill 2** in **Getting the skill**.

Ucampus online course

READING & UNDERSTANDING

Understanding the text

Comprehension 1

Read the text and match the headings (A–F) to their corresponding paragraphs.

- | | |
|-------------|---|
| Para. 1 (C) | A. Impulse control under pressure |
| Para. 2 (D) | B. Peak performance and rapid decline |
| Para. 3 (F) | C. Questioning the stereotype |
| Para. 4 (A) | D. Synaptic pruning in the adolescent brain |
| Para. 5 (B) | E. A call for delayed decision-making |
| Para. 6 (E) | F. Hormones, risk, and reward |

Comprehension 2

Match the causes (1–6) to their effects (A–F).

- | | |
|---|---|
| 1 Underutilized connections in the brain are (D) | A. less able to regulate self-control than adults. |
| 2 The prefrontal cortex is last to be pruned, (F) | B. a strong reaction in the reward center of the adolescent brain. |
| 3 Risk-taking floods the brain with (C) | C. a pleasurable rush of dopamine. |
| 4 Medium and large rewards cause (B) | D. eliminated during adolescent development. |
| 5 Stress and high emotions render adolescents (A) | E. steady decline in pattern recognition skills. |
| 6 Aging leads to (E) | F. leading teenagers to rely on the back of their brains for decision-making. |

Language focus

Words in use

Complete the sentences with the words below. Change the form if necessary.

adolescence	analogy	burgeoning	intervene
outweigh	rationality	suppress	trim

- 1 A useful analogy is to imagine that the prefrontal cortex is the brain's remote control.
- 2 Studies show that early intervention can significantly reduce delinquent behavior.
- 3 Modern neuroscience has demonstrated that emotion and rationality are two inseparably linked components of all that we think and do.
- 4 Watching television more than two hours a day early in life can lead to attention problems later in adolescence, according to a study published on *Neuroscience*.
- 5 Leaving home at an early age, the boy learned to suppress his emotions—and sometimes it may seem that he learned to have no emotions at all.

- 6 In whatever situations, the comfort of an employer ought not to outweigh justice to an employee.
- 7 It was reported that China held more than 11,000 exhibitions in 2019, seeing a(n) burgeoning exhibition economy.
- 8 Dead branches are trimmed off the trees in case that they may fall and hurt the pedestrians passing by.

Translation

Translate the following sentences into Chinese. Pay attention to the words in bold.

- 1 As teens are so impressionable (易受影响的), the concern is that their opinions might be too easily swayed by others and **override** their decision-making.
鉴于青少年易受外界影响，令人担心的是，他们的想法可能极易受他人左右，从而影响到自己的决定。
- 2 Most of us, as adults, no longer find many of the experiences we enjoyed as teenagers as pleasurable as we once did, and those of us who still do are better able to resist these **temptations** when we know we ought to.
对于大部分人来说，青少年时期喜欢做的许多事情，成年之后再做，便不再像以前那般愉悦。那些仍能以此为乐的人，在应该抵制诱惑的时候，反而更能抵住这些诱惑。
- 3 Finding her teenagers' **erratic** behavior increasingly demanding, the neurologist decided to study teenage thought processes and gather her research in a book.
这位神经学家发现，自己家的青少年的古怪举止越来越令人头疼，于是她决定研究青少年的思维过程，并将研究成果汇编成一本书。
- 4 Studies have shown remarkable changes that occur in the brain during the teen years, **coinciding** with what every parent can confirm: the teenage brain is a very complicated and dynamic arena (领域), one that is not easily understood.
有研究表明，青少年时期大脑会发生显著变化，这一点与每一位父母都能证实的事实一致：青少年的大脑是一个非常复杂和动态的领域，一个不容易理解的领域。
- 5 Beginning at puberty (青春期), the brain is reshaped. Neurons (神经元) and synapses—**junctions** between neurons—burgeon in the cerebral cortex (大脑皮层) and are then gradually pruned throughout adolescence. Eventually, more than 40% of all synapses are eliminated, largely in the frontal lobes (额叶).
从青春期开始，大脑被重塑。神经元和作为神经元之间接点的突触，在大脑皮层中激增，然后在整个青少年时期被逐渐修剪。最终，40%以上的突触被剪除，它们主要分布在大脑前额叶。

THINKING & EXPLORING

Getting the skill

Practicing the skill 2

Read the following paragraph and identify the signal words or phrases for cause and effect.

For many teens, social media can become almost addictive. In a study by researchers at the UCLA brain mapping center, they found that certain regions of teen brains became activated by “likes” on social media, sometimes causing them to want to use social media more. During the study, researchers used an fMRI scanner to image the brains of 32 teenagers as they used a social media app. The teenagers were shown more than 140 images where “likes” were believed to be from their peers. However, the likes were actually assigned by the research team. As a result, the brain scans revealed that in addition to a number of regions, the nucleus accumbens, part of the brain’s reward circuitry, was especially active when they saw a large number of likes on their own photos. According to researchers, this area of the brain is the same region that responds when we see pictures of people we love or when we win money. Researchers say that this reward region of the brain is particularly sensitive during the teen years, which could explain why teens are so drawn to social media. In another part of the study, researchers could see a correlation between social media and peer influence. Participants in the study were shown both neutral photos and risky photos. What they found is that the type of image had no impact on the number of likes given by teens in the study. Instead, they were likely to hit “like” on the popular photos regardless of what they showed. Researchers believe this behavior shows that peers can have both a positive and negative influence on others while using social media.

Reference answer:

- In a study by researchers at the UCLA brain mapping center, they found that certain regions of teen brains became activated by “likes” on social media, sometimes causing them to want to use social media more.
- As a result, the brain scans revealed that in addition to a number of regions, the nucleus accumbens, part of the brain’s reward circuitry, was especially active when they saw a large number of likes on their own photos.
- What they found is that the type of image had no impact on the number of likes given by teens in the study.
- Researchers believe this behavior shows that peers can have both a positive and negative influence on others while using social media.

Critical thinking

Teaching suggestions

- 1 Check Ss' online study of the critical thinking skill mini-lecture (Strengthening an argument) by asking them the two commonly used techniques to strengthen an argument.
- 2 Ask Ss to read through the "Strengthening an argument" skill box in **Getting the skill**. Draw their attention to the example and ask them the following questions:
 - What is the main claim?
 - How is this claim supported?
 - How many sources have been used?
 - How can these sources be found out?
 - What are the similarities between the sources?
 - Are these sources reliable?
- 3 Ask Ss to work in pairs to do Task 1 (assess an argument in a short paragraph). Ask 3–4 Ss to share their answers with the class. Give feedback on their answers.
- 4 Ask Ss to do Task 2 (find evidence to support three opinions from the text). Once evidence has been found for all three opinions, ask Ss to compare their answers with a partner. Give whole-class feedback.
- 5 Ask Ss to work in groups to discuss the two questions in Task 3. Ask 3–4 groups to share their answers with the whole class. Give feedback on their answers.

Reference answers

Getting the skill

1

- 1 It is just an opinion with no evidence.
- 2 Studies that show a lack of correlation between intelligence and crime.
Case studies that show intelligent individuals also commit crimes.
Examples of crimes that require a high level of intelligence to commit.

2

- 1 It is not that the prefrontal cortex is not developed, but that it may be influenced by other factors such as the dopamine that intervene with the decision-making process (Luna et al., 2010).
- 2 When reacting to situations without emotional cues, teenagers performed as well as adults and often even better (Casey & Caudle, 2013; Somerville, Hare & Casey, 2011).
- 3 In particular brain speed and problem-solving declined noticeably at 27 (Salthouse, 2009).

3

- 1 Factors other than dopamine that override the prefrontal cortex. / Other studies that have tested this idea. / Other studies that show the same decline of brain speed and problem-solving or a decline of other mental abilities in late twenties.
- 2 Expert opinion alone, while valid, is just an opinion. Research into an area may provide evidence to support a point of view.

Academic writing

Teaching suggestions

- 1 Introduce the writing task to Ss by referring them to the **Orientation** and explaining the writing prompt briefly.
- 2 Analyze the **Writing model** to Ss.
 - Explain the essay prompt of the model essay in detail. Highlight the key requirements of the prompt.
 - Ask Ss to read the model essay and analyze its structure by dealing with Task 1. Highlight that Ss should follow the structure in their own writing.
 - Ask Ss to work in pairs to do Task 2. Give whole-class feedback.
 - Ask Ss to work in groups and discuss the question in Task 3. Ask 2–3 groups to share their ideas. Give feedback on their ideas.
- 3 Ask Ss to finish the tasks in **Language for writing**. Explain difficult language points to Ss if needed.
- 4 Introduce the skill of anaphoric and cataphoric referencing in **Writing skill**.
 - Ask Ss to read through the “Anaphoric and cataphoric referencing” skill box in **Writing skill**. Clarify anything that Ss don’t understand with examples.
 - Give Ss time to complete Task 1 and Task 2. Ask Ss to check their answers in pairs before the T gives whole-class feedback.
- 5 Assign the **Writing task** to Ss. **写作互评作业**
 - Read through the task with Ss. Analyze the essay prompt and have Ss identify what they need to do. Remind Ss that they can review the contents of the unit. Ask them to make a note of useful skills, vocabulary, grammar, and ideas to help with the successful completion of the final writing task.
 - Ask Ss to finish the writing task on Ucampus. Highlight the elements that should be included: inverted conditionals, anaphoric and cataphoric referencing, and target vocabulary as appropriate.
 - Ask Ss to make comments on their partners’ essays on Ucampus. Give feedback on this writing assignment on Ucampus or in the next class. Point out the strengths and weaknesses in their writing and offer suggestions for them to improve.

Reference answers

WRITING MODEL

Essay prompt

Bad behavior in teenagers is affected by different factors and has a great impact on education. Collect data and write an essay to discuss the causes of bad teenage behavior and its effects on education.

Model analysis

1

Para. 1—C

Para. 2—A

Para. 3—B

2

Causes	Effects
genetics home environment	disruptive behavior lack of qualifications peers poor concentration

3

The writer strengthens the argument by citing the research results of Jaffee et al. (2012).

WRITING SKILL

Getting the skill

1

- 1 ways
- 2 This / It
- 3 these
- 4 findings
- 5 Technological developments
- 6 it

2

- 1 they
- 2 they
- 3 them
- 4 their
- 5 social groups / peers

Ucampus online course

LANGUAGE FOR WRITING

Vocabulary development

Vocabulary for describing cause and effect

Vocabulary for describing cause and effect

In the student model essay, the writer describes cause and effect using the underlined words and expressions.

- The development of the brain at this point exerts a direct influence on the behavior of teenagers, with diminished levels of fear and a heightened pursuit of risk commonplace.
- However, this can have a detrimental effect on educational performance and the environment as a whole.
- Genetics has a direct and integral effect on teenage behavior as certain personality traits such as impulsivity and risk-taking are believed to be inherited.
- The effects of teenage behavior on education can be wide-reaching.
- Perhaps at the lowest end of the spectrum it can simply bring about poor concentration in class and an inability to focus on the task in hand.
- Ultimately, but not always, this may result in a lack of qualifications and future work opportunities.

You are going to learn about more words and phrases for describing cause-effect relationship. Some of them are familiar to you. The use of different words or phrases in writing helps you to avoid repetition and add variety to word choice.

Words and phrases for describing cause and effect:

as a consequence of	as a result	because (of)	bring about	cause
consequently	due to	exert an influence on	have an effect on	in consequence
influence	lead to	owing to	prompt	result from
result in	stem from	thanks to	thus	therefore trigger

1 Match the effects to their causes. Pay attention to the words and expressions in bold.

- | | |
|--|---|
| 1 As a consequence of their upbringing, (C) | A. low self-esteem and a propensity toward criminality. |
| 2 Teenage behavior may be influenced by (E) | B. teenagers to behave in a delinquent manner. |
| 3 Poor academic performance may result in (A) | C. children with criminal parents are more likely to display criminal tendencies. |
| 4 The desire to gain the approval of their peers may prompt (B) | D. a combination of genetics and social environment. |
| 5 Risk-taking can trigger (H) | E. a hard-wired desire to seek out risk. |
| 6 The onset of adolescence may bring about (G) | F. teenage emotions and behavior. |
| 7 Criminal tendencies stem from (D) | G. an increase in delinquent behavior. |
| 8 Sleep deprivation can exert a direct influence on (F) | H. a rush of dopamine in the adolescent brain. |

2 Choose the correct words or phrases to complete the sentences.

- 1 Labeling someone a criminal _____ increased propensity for crime.
A. can trigger
B. may result from
- 2 Criminal behavior may _____ levels of intelligence.
A. be influenced by
B. exert a direct influence on
- 3 Teenage delinquency may _____ a desire to seek out reward.
A. prompt
B. result from
- 4 Many claim that criminal tendencies _____ a disruptive upbringing.
A. trigger
B. stem from
- 5 A better understanding of teenage brain development may _____ changes in the judicial system.
A. prompt
B. result from
- 6 The onset of adolescence _____ dramatic changes in the teenage brain.
A. stems from
B. brings about

Grammar

Inverted conditionals: unreal past

Inverted conditionals: unreal past

Conditional clauses are often called *if*-clauses, but they don't always include the conjunction *if*. By reversing the order of the subject and the verb in the clause, we may create clauses that are known as inverted conditionals to achieve emphasis. The *had* + *subject* + (*not*) + *past participle* is one case in point. More emphasis can be placed on the result of unreal past conditionals using this inverted construction. For example,

Had upbringing been taken into account, the importance given to genetics may have been lessened.

Had they not been raised in such an unstable environment, the twins may not have had such propensity for crime.

In academic writing, this inverted conditional can also be a useful structure for commenting on the results of someone else's research. For example,

The research suggests that had the group received a better education, they wouldn't have gone on to exhibit criminal tendencies.

In the student model essay, the writer uses this structure to comment on the research results of Jaffee et al. (2012), as shown in the following sentence:

This research suggests that had it not been for their unstable environment they would have been better able to moderate their behavior and emotions.

1 Use the prompts to write inverted conditional sentences.

- 1** negative influence of her peers / might not develop criminal tendencies

I'd argue that had it not been for the negative influence of her peers, she might not have developed criminal tendencies.

- 2** Roberts not be labeled a criminal / he not go on to a life of crime

Lemert would argue that had Roberts not been labeled a criminal, he would not have gone on to a life of crime.

- 3** subjects raised in a more stable environment / they cause fewer problems at school

It seems highly likely that had the subjects been raised in a more stable environment, they would have caused fewer problems at school.

- 4** they grow up in a more affluent area / far less likely to turn to crime

This implies that had they grown up in a more affluent area, they would have been far less likely to turn to crime.

- 5** the study be conducted today / results may be different

Critics argue that had the study been conducted today, the results may have been different.

2 Read the extract from "Born Criminal?" and answer the two questions using inverted conditionals.

Perhaps the most influential study is "The Cambridge Study in Delinquent Development" (2013), which has been following the development of 411 males since 1961. Over the 50-year period that has elapsed since the start of the study, psychologists have interviewed the test subjects nine times, moving from a focus on their school attendance, to employment and fatherhood. It was found that a significant number of delinquent youths had criminal fathers. Under 10% of children from non-offending fathers went on to become chronic offenders, whereas just under 40% of the offspring of criminal fathers went on to regularly offend.

- 1** What does the research indicate about chronic offenders and their upbringing?

The research indicates that had the children been raised by a non-offending father, they may not have gone on to become chronic offenders themselves.

- 2** How might the results have been different if the sample size had been bigger?

Had the sample size been much bigger, the results might have been significantly different.

WRITING TASK

Sample essay

Juvenile delinquency has life-changing consequences for individuals and societies. Most agree that a combination of nature and nurture brings about this deviant behavior. This essay will evaluate the role of both factors, and the serious impact such behavior can have.

In terms of genetic factors, some research suggests that people can inherit criminality from their parents. Farrington et al. (2013) found that rates of criminality were higher among those with convicted parents than those whose parents had no convictions. Similarly, studying twins, Iacono and McGue (2002) found “remarkable similarities in those raised apart—strongly suggesting that genetics, not upbringing, determines behavior and personality.” However, the methodology of both these studies has been criticized, and the studies may have distorted the truth about the extent to which personality and behavior are influenced by genetics.

To avoid oversimplification, then, it is essential to examine environmental factors that also exert a direct influence on teenagers. The first is the adults around them. Bryant and Zimmerman (2003) found that had some of the boys in their study had positive role models, they would not have exhibited “problem behaviors.” Equally important is peer pressure. Esiri (2016) found the teenagers she studied desired conformity, and had the delinquent teenagers had different friends, they probably would not have turned to crime. It would seem that criminality stems more often from these factors than from genes per se.

There can be devastating effects of delinquency. Victims, and those around them, may suffer physical or psychological harm. The delinquents themselves will also be affected. The punishment may be severe—either financially or by separation from society. The offenders may experience feelings of guilt or remorse stemming from their actions. There is also the potential for breakdown of families and other relationships prompted by their behavior.

Criminality is a serious, but not a simple phenomenon. As Zigler et al. (1992) put it, “the risk factors that make a child prone to delinquency are based in ... many systems, including the individual, the family, and community networks.” This implies that everyone in society has a role in preventing it.

Reading 1

天生是罪犯？

1 意大利律师拉斐尔·加罗法洛在其 1885 年出版的《犯罪学：对犯罪及其动机和遏制手段的研究》一书中提出，科学研究是理解犯罪心理的唯一途径。他将这一新领域命名为“犯罪学”，自其创立以来，理论家们一直在努力回答一个基本问题——我们天生是罪犯吗？

2 切萨雷·龙勃罗梭常被称为“犯罪学之父”，他反对犯罪是人性中的一种人格特征的传统观念。相反，他提出了一种犯罪人类学理论，指出犯罪行为不仅具有遗传性，而且人们可以通过一系列显著的身体缺陷来识别罪犯，这些缺陷证实了罪犯天生的返祖性和残暴性。在他最有影响力的作品《犯罪人论》中，龙勃罗梭认为，小偷的面部表情丰富、双手灵活、眼睛小且眼神飘忽不定，人们可以通过这些特征来识别他们，而杀人犯则有着玻璃般冰冷眼神、布满血丝的眼睛和鹰钩鼻。与“正常”身形的女性相比，女性罪犯通常身形较矮、皱纹较多、发色较深、头骨较小。威廉·谢尔登在《男性图鉴》（1954）中进一步提出了身体外型生来就与犯罪倾向相关的观点，并在书中提出了一种人类体型的分类法。谢尔登认为，人可以分为三大类型：瘦型、中型和胖型，然后通过给这些类型评分来确定心理特征。他认为高且体型偏瘦的人智力更高，与他们相比，肌肉发达、体格健壮的人表现出更强的犯罪倾向。不过，这些理论虽然表面上有说服力，但还没有找到任何证据来证实，因此受到广泛质疑。

3 其他早期的理论家为“标签理论”奠定了基础，这是上世纪五六十年代最著名的思想流派，该理论假设社会给予个人的负面标签实际上会促成越轨行为。这一理论的产生可以追溯到加利福尼亚大学社会学教授埃德温·M. 莱默特。在《社会病理学：一个关于反社会行为理论的系统化研究》（1951）一书中，莱默特提出了“初级越轨”和“次级越轨”的概念。“初级越轨”指的是偏离社会规范的初始行为，比如因轻微交通违规被抓或从工作单位带走文具。做出这些行为的人通常会受到谴责，感到非常内疚而不会再犯。但是，有些人继续做出进一步、反复甚至更严重的行为，即“次级越轨”，他们被贴上罪犯的标签。霍华德·贝克尔在其 1963 年出版的《局外人》一书中进一步完善了这一概念。贝克尔称，社会给罪犯贴上标签，以证明谴责是正当的，越轨者本人则借此证明他们的犯罪行为是合理的。从本质上讲，因为那就是“他们自己”，所以他们才愈加做出违法行为。标签理论的批评者认为，尽管贴标签可能会助长以后的犯罪行为，但该理论没有考虑到必定会导致初次犯罪的遗传因素或环境因素的影响。

4 《剑桥少年犯罪人发展研究》（2013）也许是最具影响力的，该研究从 1961 年开始，跟踪了 411 名男性的发展状况。此后 50 年间，心理学家对受试者进行了九次访谈，从关注他们的就学率，到关注他们的就业和父亲身份。研究发现，大量少年犯罪人的父亲是罪犯。父亲没有犯罪行为，其子女成为惯犯的比例不足 10%，而父亲有犯罪行为，其子女成为惯犯的比例接近 40%。虽然这些数据以及其他类似的研究有力地表明，犯罪的父母可能会生养出犯罪的子女，但目前尚不清楚这种代际越轨是由基因决定的，还是主要由我们的成长环境决定的。

5 此外，多项研究也发现智力与犯罪之间存在关联。莫菲特等人（1981）发现，智商较低的男性到20岁时就已持续发生两次或多次犯罪行为。登诺（1994）还测试了近1000名儿童在不同时期的智力，发现智商与犯罪行为之间持续负相关。但是其他研究人员，如梅纳德和莫尔斯（1984），认为这种关联太弱，无法认定具有统计意义。然而，不管在多大程度上影响犯罪行为倾向，智力似乎确实是一个因素，这就引出另一个问题：我们的智力是天生的吗，进一步讲，我们是生来守法的吗？昆士兰大学的研究人员发现，最多只有40%的智力是遗传决定的，其余都由环境因素决定。如果这一结论正确，那么先天和后天因素都会影响犯罪倾向的发展。

6 有研究领域通过比较单卵双生子和异卵双生子的行为来验证这一假说，前者具有相同的基因构造，后者平均拥有50%的相同基因。在一篇梳理单卵双胞胎和犯罪行为研究的文献综述中，作者发现60%的单卵双胞胎同时表现出了犯罪行为，而只有三分之一的非单卵双胞胎有类似相关行为。在《明尼苏达州双胞胎家庭研究》（2002）中，研究人员目前正在比较在一起长大和从出生就分离的单卵双胞胎和异卵双胞胎。这项研究发现，那些分开抚养的双胞胎有着惊人的相似之处，这有力表明，决定行为和人格的是基因而不是后天教养。然而，对基因与犯罪有关联这一观点持批评态度的人认为，糟糕的研究方法和研究设计歪曲了研究结果，我们几乎没有确凿的证据说明犯罪是由基因决定的。

7 那么，我们是天生的犯罪者吗？虽然研究有力地表明存在某种程度上的犯罪倾向基因，但很明显，后天教养在犯罪倾向的发展中起着不可或缺的作用。故意将犯罪行为归咎于基因会忽视一份更大的社会责任，那就是确保我们成长的环境不会助长犯罪行为。

Reading 2

你的大脑准备好了吗？

1 青春期是我们生命中一个充满挑战的时期。即将步入成年期的青少年，似乎前一分钟还沉静自若，下一分钟就会鲁莽行事，或者正如贝尔和麦克布赖德（2010）所说，“汽油满满，没有刹车，也没有方向盘。”在这个似乎非常难以保持理性的阶段，青少年却被期待做出对余生影响深远的决定，他们经常会在仓促中将自己置于危险的境地。那么，如何从神经学的角度解释这种看似不稳定的行为？它有什么好处吗？

2 最常被援引的解释也许是，典型的青少年行为是由前额叶皮质发育不良造成的——前额叶皮质是我们大脑中控制冲动和情绪并做出理性决定的区域。前额叶皮质通过被称为“突触”的神经元接点与大脑其他部分进行交流。我们在儿童时期积累了过量的突触，进入青春期后，它们中一半以上会被系统性地移除，剩余突触则得到加强，以提高交流效率；这一过程在神经科学中被称为“突触修剪”。在突触修剪过程中，大脑执行“非用即弃”的策略，保留和加强经常使用的连结，去掉那些不常用的连结。例如，如果你经常使用与外语学习相关的大脑区域，那么这个区域的突触将发展出强大的连结，不会被修剪掉。但是，如果这个区域未被充分利用，突触就很可能被消除。事实上，许多研究人员认为，如果我们不在人生中这一时期培养技能，那以后就几乎再也不可能了。脑成像显示，青少年的突触修剪过程从大脑后部开始，按部就班地向前移动到

前额叶，最后才修剪前额叶皮质。因此，青少年被迫在大脑后部处理大多数大脑指令，而不是在前额叶皮质，这在某种程度上解释了为何他们似乎无法评估风险和做出合理决策。

3 根据卢纳等人（2010）的说法，突触修剪并不是区分青少年大脑和成人脑的唯一因素。卢纳的研究小组使用功能性磁共振成像（fMRI）扫描青少年大脑，以跟踪不同区域的血液流动情况，结果表明，在此时期，前额叶皮质尽管发育不全，但它实际上是活跃的。然而，多巴胺的激增压倒了青少年做出理性决定的能力，多巴胺是一种可以触发快感的激素，在人们冒险时会产生。本质上，这种化学物质给出了巨大的奖赏，以至于青少年积极寻求冒险。此外，伏隔核——大脑寻求快乐和奖赏的区域——在青少年大脑中相当成熟，实际上，在决策过程中，它似乎与前额叶皮质直接竞争。在纽约康奈尔大学进行的研究测量了受试者完成小型任务后得到奖励时的大脑活动（加尔万等，2006）。当得到中等或较大的奖励时，相较于成年人和幼儿，青少年的奖赏中枢做出的反应强烈得多。当得到较小的奖励时，青少年的反应就好像没得到任何奖励一样。这似乎再次印证了青少年的大脑生而冲动的观点。从神经学上讲，他们有能力做出有效决策和控制自我，但有时他们被寻求冒险或奖赏的诱惑所干扰，超过了他们的理性。

4 许多人会认为，贝尔和麦克布赖德的“汽油满满，没有刹车，也没有方向盘”的类比，是对青少年大脑发育整体状况的过分简化。事实上，根据卡塞伊和考德尔（2013）的研究，在某些情况下，相较于成年人，青少年实际上能更好地调节冲动。在一系列实验室实验中，萨默维尔、黑尔和卡塞伊（2011）向受试者展示了含有积极、消极和中性面部表情的图片，并测量他们调节反应的能力。当没有情绪信息呈现时（即面部表情是中性的），青少年的表现和成年人一样好，甚至可能比成年人更好。不过，当呈现积极或消极情绪信息时，青少年更难抑制他们的反应。抑制能力消减的现象没有在成人或儿童身上发现，对他们来说，无论是否呈现情绪信息，调节控制的难度是相同的。这似乎与那个过于简单化的说法相悖，即青少年总是无法理性行事或做出正确的决定。虽然这在激烈或紧张的情况下可能是正确的，这也许是因为他们倾向于依赖杏仁核，即大脑中引导本能的区域，而不是依赖前额叶皮质，但在一般情况下，相对于成年人，青少年实际上更有能力控制冲动并做出理性决定。

5 同样值得考虑的是，虽然青少年的大脑可能仍处于发育阶段，但我们计划和回忆事件的能力，以及任务协调能力，实际上在 20 到 30 岁之间的中后期就开始飞速下降。弗吉尼亚大学的蒂莫西·索尔特豪斯（2009）进行了一项研究，要求 2000 名年龄在 18 岁到 60 岁之间的受试者，在七年内反复解题，回忆单词和往事，还有识别图案。结果表明，受试者的快速比较能力、回忆无关联信息的能力、识别图案和关系等能力急剧下降。尤其是大脑运转速度和解题能力，二者在 27 岁时明显下降，平均记忆水平在 37 岁左右开始下滑。虽然大多数人以积累的知识和经验来弥补这一损失，但与青少年迅猛发展的大脑相比，一些脑力技能确实有所下降。

6 总的来说，在许多方面，青少年的大脑与成年人的大脑没什么不同。然而，突触修剪，多巴胺的频繁涌入，以及前额叶皮质和大脑奖赏中枢之间的竞争，都会影响青少年做出清晰而理性的决策的能力。但是，冒险倾向增加，无疑是促使青少年寻求可能影响其职业生涯的新体验的因素之一，这或许也应当被视为是有益的。话虽如此，我们也可以认为，由于大脑在此时期仍在发育，因此应当推迟做出关键决定的时间，推迟到我们能更有效地权衡风险、做出理性决策的时候。考虑到寻求冒险和短期奖赏的愿望如此强烈，青春期也许不是做出将深刻影响我们余生的决定的最佳时期。