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# Artificial Intelligence

## Pre-Class Tasks

### 1 Mini-Research

Search the Internet for information about artificial intelligence (AI) and answer the following questions.

1. What is AI?
2. What are some of the applications of AI?

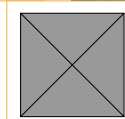
### 2 Co-Learning

Watch a video clip about Professor Stephen Hawking's speech on AI and discuss the following questions in a group.

1. According to Hawking, is there a deep difference between what can be achieved by a biological brain and what can be achieved by a computer?
2. Why will the rise of powerful AI be either the best or the worst thing ever to happen to humanity?

### 3 Presentation

What is your opinion about AI? What are the pros and cons of AI? Do you think the advantages will outweigh the disadvantages or vice versa? Make a three-minute presentation on this topic in class.



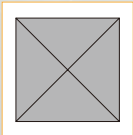
VIDEO CLIP





# Developing Your Human Touch

John Pugliano



AUDIO CLIP

- 1 In the past, most of the value placed on human effort was machinelike in nature, even among skilled professionals. A worker was judged on his ability to perform a repetitive task. He was rewarded for being a reliable cog in the wheel. Even today, industrial age-conditioning makes it difficult to recognize the importance of human touch over mechanical output.
- 2 Unlike predictable machines, human actions are not logical and can cause uncertain outcomes. Managers do not like uncertainty and thus prefer machines over people.

That is good news and bad news for the employee. As robotic applications advance, more jobs will be automated, especially those that are most repetitive—the loss of a job is bad news. However, the good news is that the jobs available for humans will be less mundane.

- 3 It is paradoxical, but I believe the problem of emotional irrationality is also the solution to combating the takeover by automation. The jobs that remain will be most appropriate for humans. They will value human touch over routine. That means there will be a demand for people that possess wisdom.
- 4 The confluence of emotion and logic is the formation of wisdom. Wisdom is superior to artificial intelligence. People can only have relevance in the age of automation by being more human, not more robotic. In short, you must learn to develop your human touch.

#### Follow your internal compass

- 5 I am the father of six children. Although raised under similar conditions, from birth they each exhibited distinct characteristics and personality traits. Their interests and passions varied greatly. Some were studious, others athletic or artistic. My wife and I attempted to guide or nudge them in a particular direction, but each child's ultimate course was primarily directed by their own innate curiosity.
- 6 My youngest son Ezra is a case in point. Ezra has had an obsessive passion for cars all his life. As a baby, he ignored the stuffed animals, balls, and games that his siblings enjoyed. He only played with toys that had wheels. As a toddler, he wanted to sit in my lap and learn how to “drive” the car. Before he could identify colors or read, he knew all the major car brands. Ezra would point at a silver BMW and exclaim, “I like that red BMW!” The day I took him for his driving permit, he looked at me with all sincerity and said, “I’ve been waiting for this day all my life.”
- 7 I tell this story to illustrate that unlike robots, humans can sense their purpose. They possess an evolutionary biological compass that points them in the direction

of their capabilities. Developing human touch is a process whereby you align your outward actions with your internal sense of purpose. The difficulty is that there is not one correct answer or a single path. The way that you will know that you are on course is by following your biological compass.

- 8 Ezra was a boy with an innate love of cars; his biological compass was always pegged to the goal of learning to drive. Likewise, your inner passion will lead you to pursue activities in your unique area of interest. Like a liquid, human desires flow to fill the volume that constrains their lives.
- 9 Automation will change our lives at a rapid rate that we have never before experienced in human history. The robots are coming for your job. Employment situations will change in ways we cannot yet conceive. Your place in society will seem murky because your physical performance is no match for a robot. The curvature of employment has changed forever. You must flow to fill the new void. I believe the only path forward is to develop your instinctual sense of human touch.

#### What is human touch?

- 10 What is human touch? It can be defined but it is harder to describe. Human touch is the ability to create. It is a singular human attribute. All living things can replicate themselves, but humans are the only species that can create beyond their own kind. From bicycles to hospitals to nuclear isotopes, mankind organizes matter to create things that did not previously exist.
- 11 Robots are only as useful as the task they have been programmed to execute. They can learn, but they cannot create. In its purest form, human touch is the creative process.

#### Feelings

- 12 Some will argue that robots will become sophisticated enough to develop interpersonal relationships with people. Artificial intelligence may endow robots with emotional bonding capabilities, but I do not believe that humans will reciprocate. Observe how people have bonded with technology in the past. Technology of old is not impressive to you but it is always life-changing to the people who first adopted it. Indoor plumbing, electricity, refrigeration...the list is endless. All these technologies were revolutionary and greeted with much enthusiasm.
- 13 Despite people's love and connection with a new technology, it is fleeting. In the 1950s, consumers loved the tiny little black and white screen on their television. When the color TV was introduced, they could not wait to upgrade, just as they did when cathode ray tubes were replaced with flat screens. This is the course of technology—the new rapidly replaces the old.

- 14 When a new smartphone is introduced, consumers camp out overnight to be first in line to purchase. They do not mourn the loss of the old phone. People cry when their pet dies, but they joyfully throw out old appliances to upgrade for something better. This is the state of the human condition.
- 15 People fall in love with living things, not inanimate objects. The robots are coming for your job, but they cannot replace you if you are loved. People that learn to use their human touch to create will prosper; those that create emotional bonds and feeling with others will thrive.

### Wisdom

- 16 Wisdom is the result of knowledge guided by human experience. It is the product of logic and emotion. Our creative human touch has its origin in our wisdom. The divide that separates human wisdom from robotic artificial intelligence is vast. Think of it as a demilitarization zone that will provide defensive cover against an impending robotic invasion.
- 17 Robots think logically, as is characterized by Hollywood stereotypical humanoids decrying, “does not compute.” Counterintuitively, the robot’s strength of precision and logical efficiency is its Achilles’ heel. What the robot cannot compute, you can feel. That single advantage will set humans apart from the onslaught of automation’s superior performance, much as the simple anatomy of opposable thumbs sets primates apart from much stronger mammals.
- 18 Automation is highly productive at routine tasks, but it cannot create beyond the limits of its inherent programming. Advances in artificial intelligence will enable robots to learn, but not create. It is a subtle difference, but the defining factor of human value.

## Notes to the Text

### opposable thumbs

An opposable thumb is a thumb that can be placed opposite the fingers of the same hand. Opposable thumbs allow the fingers or toes to grasp and handle objects, and are characteristic of primates.

In robotics, almost all robotic hands have a long and strong opposable thumb. Like human hands, the thumb of a robotic hand also plays a key role in gripping objects.



## New Words and Expressions

**a cog in the wheel** someone who only has a small unimportant job in a large organization (大机构中的) 无足轻重的人物

**irrationality** /ɪræʃə'nælɪti/ *n.* the state of behaving or doing things without clear thought or reason 非理性, 不合理

**confluence** /'kɒnfluəns/ *n.* (*formal*) a situation in which two or more things combine or happen at the same time (两件或以上事情的) 同时发生, 会集

**compass** /'kʌmpəs/ *n.* an instrument that shows directions and has a needle that always points north 指南针, 罗盘

**distinct** /dɪ'stɪŋkt/ *adj.* clearly different or belonging to a different type 明显不同的, 截然不同的

**studious** /'stju:diəs/ *adj.* spending a lot of time studying and reading 好学的, 勤奋的

**obsessive** /əb'sesɪv/ *adj.* thinking or worrying about sth all the time, so that you do not think about other things enough 痴迷的, 迷恋的

**align** /ə'lam/ *v.* to organize or change sth so that it has the right relationship to sth else 使一致

**peg** /peg/ *v.* to set sth in relation to sth else 使……与……挂钩

**constrain** /kən'streɪn/ *v.* to stop someone from doing what they want to do 限制

**conceive** /kən'si:z/ *v.* to think of a new idea, plan, etc. and develop it in your mind 构思, 想出 (新的主意、计划等)

**murky** /'mɜ:ki/ *adj.* complicated and difficult to understand 复杂的, 难以理解的

**curvature** /'kɜ:vətʃə/ *n.* (*technical*) the state of being curved, or the degree to which sth is curved 弯曲, 曲率, 曲度

**attribute** /'ætrɪbjʊt/ *n.* a quality or feature, especially one that is considered to be good or useful 特性, 特质, 属性

**isotope** /'aɪsətəʊp/ *n.* (*technical*) one of the possible different forms of an atom of a particular element 同位素

**sophisticated** /sə'fɪstɪkeɪtɪd/ *adj.* (of a machine, system, etc.) clever and complicated in the way that it works or is presented 复杂巧妙的, 先进的

**endow sb/sth with sth** to give sb or sth a good quality or ability 给予, 赋予

**reciprocate** /rɪ'sɪprəkeɪt/ *v.* to feel the same about someone as they feel about you 回报以 (相同的感情)

**fleeting** /'fli:tɪŋ/ *adj.* lasting for only a short time 短暂的, 飞逝的

**cathode ray tube** a piece of equipment in televisions and computers that sends an image to the screen 阴极射线管

**mourn** /mɔ:n/ *v.* to feel very sad because sth no longer exists or is no longer as good as it used to be 对……感到痛心

**divide** /də'vaɪd/ *n.* a strong difference between the beliefs or way of life of groups of people, which may make them hate each other (不同群体在信仰或生活方式上的) 差异, 差别

**demilitarization** /di:mɪlɪtəraɪ'zeɪʃən/ *n.* the process of removing military forces from an area 非军事化, 废除军备

**impending** /ɪm'pendɪŋ/ *adj.* (usually of an unpleasant event) going to happen very soon (尤指不愉快的事情) 逼近的, 即将发生的

**counterintuitively** /,kaʊntərɪn'tju:ɪtɪvli/ *adv.* in a way that is the opposite of what you would expect or what seems to be obvious 反直觉地

**onslaught** /'ɒnslɔ:t/ *n.* (~ against/on sb/sth; ~ of sth) a very strong attack 猛攻, 猛击

**primate** /'praɪmeɪt/ *n.* a member of the group of animals that includes humans and monkeys 灵长目动物

**mammal** /'mæməl/ *n.* an animal that is born from its mother's body, not from an egg, and drinks its mother's milk as a baby 哺乳动物

## Lexical and Grammar Notes

### 1. Ezra would point at a silver BMW and exclaim, “I like that red BMW!”

In this sentence, the modal verb *would* is used to describe typical behavior in the past, often in the sense of what is habitual or regular. For example:

*On Sundays when I was a child, we would all get up early and go fishing.*

The modal verb *will* can also be used to say what always happens in a particular situation or what is generally true. Examples:

*When you look at clouds they will often remind you of animals.*

*If something breaks down and you kick it, it will often start working again.*

### 2. Robots think logically, as is characterized by Hollywood stereotypical humanoids decrying, “does not compute.”

The word *as* in this sentence is used to introduce a non-defining attributive clause, expressing the meaning “in the way that someone says or that something happens.” More examples:

*Sophia was not unconscious, as could be judged from her eyes.*

*He was not a local man here, as I know from his accent.*

*The young girl must be an excellent dancer, as is clear from her manner.*

Different usages of *as* have been expounded in Units 2, 4, and 11 in Book 1; Unit 2 in Book 2; and Unit 1 in Book 3. You can refer to these units to have a review.

### 3. What the robot cannot compute, you can feel.

“What the robot cannot compute” is the object of this sentence, but it is placed at the beginning of the sentence. This is a form of fronting.

Fronting refers to the placement of a normally non-initial element at the beginning of a sentence so as to enhance cohesion and to provide emphasis. More examples:

*Why didn't you tell me? Such things you must tell me.*

*Far more serious were the severe injuries, in particular bruising to the head.*

## Comprehension

**1** Find out information about the following and share your findings in a group.

- 1 humanoid
- 2 Achilles' heel

**2** Analyze the text structure and complete the following table.

Introduction (paras. 1-4)	The author gives a clear thesis statement: People must learn to _____.
Demonstration (paras. 5-18)	<ol style="list-style-type: none"><li>1 (paras. 5-9) With the example of his son, the author illustrates that _____.</li><li>2 (paras. 10-11) Human touch is _____.</li><li>3 (paras. 12-15) _____.</li><li>4 (paras. 16-18) _____.</li></ol>

**3** Answer the following questions.

- 1 What kind of job is most likely to be replaced by machines according to paragraphs 1 and 2?
- 2 What does “emotional irrationality” in paragraph 3 refer to? And why is it the solution to combating the takeover by automation?
- 3 Why does the author mention the story of his son Ezra?
- 4 According to the author, what is human touch?
- 5 What is people’s reaction to a new technology and why?
- 6 How do you understand “The robots are coming for your job, but they cannot replace you if you are loved” in paragraph 15?
- 7 Do you agree with the author’s view that “the robot’s strength of precision and logical efficiency is its Achilles’ heel” (para. 17)? Why or why not?
- 8 The sentence “The robots are coming for your job” appears twice in paragraphs 9 and 15. What is the effect of the repetition?

## Word Application

**1** Complete the sentences with the proper form of the words in parentheses.

- 1 “A white horse is not a horse” is a well-known philosophical \_\_\_\_\_.  
(paradoxical)
- 2 She struggled to overcome her \_\_\_\_\_ dread of the dark. (irrationality)
- 3 The hotel rooms \_\_\_\_\_ in size and decoration, but all have Wi-Fi and flat screen TVs. (vary)
- 4 Lack of funding has been a major \_\_\_\_\_ on the building’s design.  
(constrain)
- 5 Eye operations often involve the use of highly \_\_\_\_\_ equipment, such as lasers. (sophisticate)

**2** Paraphrase the following sentences, paying special attention to the underlined parts.

- 1 He was rewarded for being a reliable cog in the wheel.
- 2 The good news is that the jobs available for humans will be less mundane.
- 3 People can only have relevance in the age of automation by being more human, not more robotic.
- 4 The way that you will know that you are on course is by following your biological compass.
- 5 You must flow to fill the new void.

**3** Complete the sentences with the proper form of the expressions given below.

align...with  
on course

be superior to  
fall in love with

endow...with  
set...apart from

- 1 If he wins today, he is \_\_\_\_\_ for the Grand Slam this year.
- 2 The author’s brilliant wit really \_\_\_\_\_ her \_\_\_\_\_ other contemporary writers.
- 3 His policy is closely \_\_\_\_\_ the goals of the organization.
- 4 Nature \_\_\_\_\_ Jane \_\_\_\_\_ a beautiful singing voice.
- 5 The company’s products \_\_\_\_\_ many models produced by its rivals.
- 6 More and more international students in our university \_\_\_\_\_ traditional Chinese culture.

- 4** Distinguish the meaning of the words in each group, and then complete the sentences with the proper form of the appropriate words.

**distinct; distinctive**

- 1 The most \_\_\_\_\_ feature of the building is its enormous dome-shaped roof.
- 2 I have a \_\_\_\_\_ memory of my grandma sitting in the rocking chair, knitting.

**conceive; deceive; perceive**

- 3 He thought that by all his fast talking and flattery he could pull the wool over her eyes, but she wasn't \_\_\_\_\_.
- 4 When the writer \_\_\_\_\_ this role, she had a specific actor in mind to play the part.
- 5 The human eye is capable of \_\_\_\_\_ thousands of insignificant details.

**evolutionary; revolutionary**

- 6 It follows from all this that natural selection cannot be the sole explanation of \_\_\_\_\_ change.
- 7 The new treatment for cancer is considered \_\_\_\_\_.

**human; humanity; humanoid**

- 8 The robot was \_\_\_\_\_ in appearance.
- 9 The judge was praised for his courage and \_\_\_\_\_.
- 10 He may look callous, but he is really very \_\_\_\_\_ when you get to know him.

- 5** Complete the sentences with appropriate prepositions or adverbs.

- 1 Engineers spent much time and energy developing brilliant solutions \_\_\_\_\_ this problem.
- 2 We acted \_\_\_\_\_ your advice and finished the work in no time.
- 3 Aside \_\_\_\_\_ being well written, the book is also beautifully illustrated.
- 4 I've done a lot of hiking, but never camped \_\_\_\_\_ overnight.
- 5 Competitors in this quiz will be judged \_\_\_\_\_ speed and accuracy.
- 6 Do you have a room available \_\_\_\_\_ this weekend?
- 7 We're going to have to move \_\_\_\_\_ a rate of knots to get there on time.
- 8 Kathy was obsessed \_\_\_\_\_ *A Dream of Red Mansions*, and had her own views on each character.

## Grammar Application

- 1** Decide which of the words given in the box below would best complete the passage if inserted in the corresponding blanks. The words can be used ONCE ONLY.

A. able	B. capable	C. clarify	D. convention	E. detect
F. execute	G. feel	H. identify	I. remains	J. measure
K. relies	L. interchangeably	M. required	N. sensors	O. traditional

An autonomous car is a vehicle **1** \_\_\_\_\_ of sensing its environment and operating without human involvement. A human passenger is not **2** \_\_\_\_\_ to take control of the vehicle, nor is a human passenger required to be present in the vehicle at all. The term “self-driving” is often used **3** \_\_\_\_\_ with “autonomous.” However, they are slightly different. A self-driving car can drive itself in some or even all situations, but a human passenger must always be present and ready to take control.

An autonomous car can go anywhere a(n) **4** \_\_\_\_\_ car goes and do everything that an experienced human driver does. It **5** \_\_\_\_\_ on sensors, actuators, complex algorithms, machine learning systems, and powerful processors to **6** \_\_\_\_\_ software.

Autonomous cars create and maintain a map of their surroundings based on a variety of **7** \_\_\_\_\_ situated in different parts of the vehicle. Radar sensors monitor the position of nearby vehicles. Video cameras **8** \_\_\_\_\_ traffic lights, read road signs, track other vehicles, and look for pedestrians. Lidar (light detection and ranging) sensors bounce pulses of light off the car’s surroundings to **9** \_\_\_\_\_ distances, detect road edges, and **10** \_\_\_\_\_ lane markings. Ultrasonic sensors in the wheels detect curbs and other vehicles when parking.



**2** Complete the sentences with appropriate modal verbs *will, shall, would, or should*.

- 1 If I lived near my office, I \_\_\_\_\_ walk to work.
- 2 I \_\_\_\_\_ definitely pay you back next week.
- 3 When I was a child, my father \_\_\_\_\_ read me a story at night before bedtime.
- 4 What time \_\_\_\_\_ we come and see you?
- 5 According to the company's regulations, members of the board of directors \_\_\_\_\_ be elected annually.
- 6 \_\_\_\_\_ you mind if I opened the window?
- 7 I \_\_\_\_\_ have to ask you to wait a minute.
- 8 Each time I give him a problem he \_\_\_\_\_ solve it for me.
- 9 I'm amazed that he \_\_\_\_\_ have done something so stupid.
- 10 He \_\_\_\_\_ have finished the whole job by this evening.

**3** Complete the sentences with appropriate words given below. In some cases, more than one answer is possible.

as	though	although	while	whereas
----	--------	----------	-------	---------

- 1 We hoped to give you a chance such \_\_\_\_\_ nobody else ever had.
- 2 \_\_\_\_\_ Sophie's father is from Spain, he doesn't speak Spanish.
- 3 Try \_\_\_\_\_ I would, I couldn't prevail upon him to change his mind.
- 4 Classrooms at the new campus tend to be better equipped, \_\_\_\_\_ those at the old campus are relatively poor.
- 5 My grandmother, \_\_\_\_\_ well over 80, can walk faster than I can.
- 6 I eat most dairy products. I'm not keen on yogurt, \_\_\_\_\_.
- 7 \_\_\_\_\_ was expected, he performed the task successfully.
- 8 \_\_\_\_\_ it's raining again, we'll have to stay at home.
- 9 Tired \_\_\_\_\_ she was, she stayed up to finish the bidding document.
- 10 \_\_\_\_\_ I get older, I get more optimistic.

**4** Translate the following sentences into English, using the proper form of the words or expressions in parentheses.

- 1 我们所付出的一切辛勤劳动终于获得了回报，这种感觉真好。(reward)
- 2 他很小的时候就表现出对音乐的天赋。(exhibit)
- 3 父母和老师可以给你建议，但最后的决定由你来做。(ultimate)
- 4 机会总是垂青于有准备的人，青蒿素的发现就是个很好的例子。(a case in point)

- 5 我很怀念那段为梦想奋斗的时光——我们常常会彻夜讨论那些技术难题。(would)
- 6 他的奖金与他每年完成的销售额挂钩。(peg)
- 7 他拥有一流运动员应具备的所有特质。(attribute)
- 8 这部电影制作精良，情节曲折动人，完全超出了我的想象。(beyond the limits of)

## Oral Practice

Work in a group and discuss the following topic.

The way that you will know that you are on course is by following your biological compass. (para. 7)

What is the direction of your “biological compass”? How will it influence your career development and life planning? What advantages do you think you have in the age of artificial intelligence?

## Writing

As mentioned in the text, “Automation will change our lives at a rapid rate that we have never before experienced in human history.” In your opinion, what will automation bring to education? Write an essay in no less than 200 words to illustrate your viewpoints. The following instructions are for your reference.

- 1 Elaborate on your understanding of the quoted sentence.
- 2 Analyze the benefits and challenges automation has brought or will bring to education.





## Are There Robot-Proof Jobs?



**Byron Reese**

- 1 When I give talks about AI and robots, they are often followed by questions from the audience. By far the number one question I am asked is a variant of “What should my kids be studying today to make sure that they are employable in the future?” As a dad with four kids under twenty, I have pondered this question at length, too.
- 2 If possibility one is true—that is, if robots take all the jobs—then the prediction of the author Warren G. Bennis will also have come true: “The factory of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment.” In other words, there would be no robot-proof jobs.
- 3 But if possibility two or possibility three comes to pass, then there will be robot-proof

jobs. What will they be? A good method for evaluating any job's likelihood of being automated is what I call the "training manual test." Think about a set of instructions needed to do your job, right down to the most specific part. How long is that document? Think about a posthole digger versus an electrician. The longer the instruction manual, the more situations, special cases, and exceptions exist that need to be explained. Interestingly, when surveyed, people overwhelmingly believe that automation will destroy a large number of jobs, but also overwhelmingly believe that their own job is robot-proof. In other words, most people think that the manual to do their job is large while other people's job manuals are smaller.

- 4 The reason why the training manual test works is that writing a manual on how to do a job is a bit like programming a computer or robot to do a job. In a program, every step, every contingency, every exception, needs to be thought through and handled.
- 5 One wonders if there are some jobs that can't be written down. Could anyone write a set of instructions to compose a sonata or write a great novel? How you answered our big foundational questions probably determines what you think about this question. To those who think they are machines, who are monists, there is nothing mysterious about creativity that would keep machines from mastering it, whereas those on the other side of that gulf see creativity as a special, uniquely human ability.
- 6 Below are several groups of jobs that, regardless of your beliefs about the capabilities of robots, should be stable for a long time.
- 7 Jobs robots can do but probably never will. Some jobs are quite secure and are accessible to a huge range of the population, regardless of intellect, educational attainment, or financial resources, because although a robot could do them, it doesn't make economic sense for them to do so. Think of all of the jobs people will need for the next hundred years, but only very occasionally.
- 8 I live in a home built in the 1800s that contains several fireplaces. I wanted to be able to use them without constantly wondering if I was going to burn the house down, so I called in "the guy" for old fireplace restoration. He took one look at our fireplaces and started spouting off about how they clearly hadn't been rebuilt in the 1900s—sometime when some report came out in England that specified blah-blah-blah better heat reflection blah-blah-blah. Then he talked about a dozen other things relating to fireplaces that I tuned out because clearly this man knew more about fireplaces than anyone else I would ever meet, or he was a convincing enough pathological liar that I would never figure him out. Either way, the result is the same: I hired him to make my fireplaces safe. He is my poster child of a guy who isn't going to be replaced by a robot for a long time. His grandkids can probably

retire from that business.

- 9 There are many of these jobs: repairing antique clocks, leveling pier-and-beam houses, and restoring vintage guitars, just to name a few. Just make sure the object you're working on isn't likely to vanish. Being the best VCR repairman in the world is not a career path I would suggest.
- 10 Jobs we won't want robots to do. There are jobs that, for a variety of reasons, we wouldn't want a machine to do—NFL football player, ballerina, and actor, etc. This case is pretty straightforward. Additionally, there are jobs that incorporate some amount of nostalgia or quaintness, such as blacksmith or candlemaker.
- 11 Unpredictable jobs. Some jobs are so unpredictable that you can't write a manual on how to do them, because the nature of the job has inherent unpredictability. I have served as the CEO of several companies, and my job description was basically: Come in every morning and fix whatever broke and seize whatever opportunities presented themselves. Frankly, much of the time I just winged it. I remember one day I reviewed a lease agreement, brainstormed the names for a new product, and captured a large rat that fell from a ceiling tile onto an employee's desk. If there was a robot that could do all of that, I'd put down a deposit on it today.
- 12 Jobs that need a high social IQ. Some jobs require high-level interaction with other people, and they usually need superior communication abilities as well. Event planner, public relations specialist, politician, hostage negotiator, and director of social media are just a few examples. Think of jobs that require empathy or outrage or passion.
- 13 Jobs done on site. On site jobs will be difficult to be done with robots. Robots work well in perfectly controlled environments, such as factories and warehouses, but not in ad hoc environments like your aunt Sue's attic. Forest rangers and electricians are a couple of jobs like this that come to mind, but there are many more.
- 14 Jobs that require creativity or abstract thinking. It will be hard if not impossible for computers to be able to do jobs that require creativity or abstract thinking, because we don't really even understand how humans do these things. Possible jobs include author, logo designer, composer, copywriter, brand strategist, and management consultant.
- 15 Jobs no one has thought of yet. There are going to be innumerable new jobs created in this technological age. Given that a huge number of current jobs didn't exist before 2000, it stands to reason that many more new professions are just around the corner. Market research companies forecast that within the next decade, an astonishing number of jobs will be created building robots and the software that powers them.

## Working with Words and Expressions

Look up the following words and expressions in a dictionary and find out their meaning in the text.

- 1 robot-proof
- 2 spout off (para. 8)
- 3 tune out (para. 8)
- 4 pathological (para. 8)
- 5 poster child (para. 8)
- 6 NFL (para. 10)
- 7 wing it (para. 11)

## Understanding the Text

**1** Answer the following questions.

- 1 What is the prediction of Warren G. Bennis? What does it mean?
- 2 What is a good method for evaluating a job's likelihood of being automated?
- 3 What does the author mean by saying "Being the best VCR repairman in the world is not a career path I would suggest" (para. 9)?
- 4 Why wouldn't we want a machine to do the job of a football player, ballerina, or actor?
- 5 What kinds of jobs are considered unpredictable jobs?

**2** Translate the following sentences into Chinese.

- 1 The longer the instruction manual, the more situations, special cases, and exceptions exist that need to be explained.
- 2 In a program, every step, every contingency, every exception, needs to be thought through and handled.
- 3 To those who think they are machines, who are monists, there is nothing mysterious about creativity that would keep machines from mastering it.
- 4 Robots work well in perfectly controlled

environments, such as factories and warehouses, but not in ad hoc environments like your aunt Sue's attic.

- 5 Given that a huge number of current jobs didn't exist before 2000, it stands to reason that many more new professions are just around the corner.

## Voicing Your Views

Work in a group and discuss the following topic.

In the text, the author mentions various types of jobs that can be classified as robot-proof jobs. Do you agree with his classification? Why or why not? Can you name any other jobs that can be regarded as robot-proof jobs?

## Reading Between the Lines

Read the paragraph carefully and complete the following tasks.

Unpredictable jobs. Some jobs are so unpredictable that you can't write a manual on how to do them, because the nature of the job has inherent unpredictability. I have served as the CEO of several companies, and my job description was basically: Come in every morning and fix whatever broke and seize whatever opportunities presented themselves. Frankly, much of the time I just winged it. I remember one day I reviewed a lease agreement, brainstormed the names for a new product, and captured a large rat that fell from a ceiling tile onto an employee's desk. If there was a robot that could do all of that, I'd put down a deposit on it today. (para. 11)

- 1 Analyze why the author mentions his own experience and what effect is achieved.
- 2 List some other techniques that can support one's view effectively in writing.