

CHAPTER 3

Private Eyes

Is your personal data being collected, used, and/or abused? The answer is certainly *yes*. Increasingly, new technologies and powerful computer programs are being deployed along with your digital footprint to uncover as much as possible about you. It starts when you shop or use social media online, or step out the door and are caught on video cameras set up by businesses or traffic authorities. Street cameras often use facial recognition to determine your identity based on other online records. Although the purpose is to catch criminals, businesses employ the same technologies to identify customers. **How much does privacy mean to you?**

In this chapter, you will

- learn vocabulary related to privacy and digital devices;
- listen to infer attitudes;
- identify pros and cons;
- express beliefs, facts, and opinions accurately;
- use Likert scales to measure attitudes;
- examine methods to provide counterarguments;
- conduct a survey on a privacy topic and discuss the results in a group.

GEARING UP



A. Look at the infographic and answer the questions.

- ① *Hacking* refers to gaining unauthorized access to or destroying others' digital information. People who engage in this activity are called *hackers*; what motivates them?

- ② A Trojan horse virus is often downloaded as part of another program. Why are people not more careful about what they download?

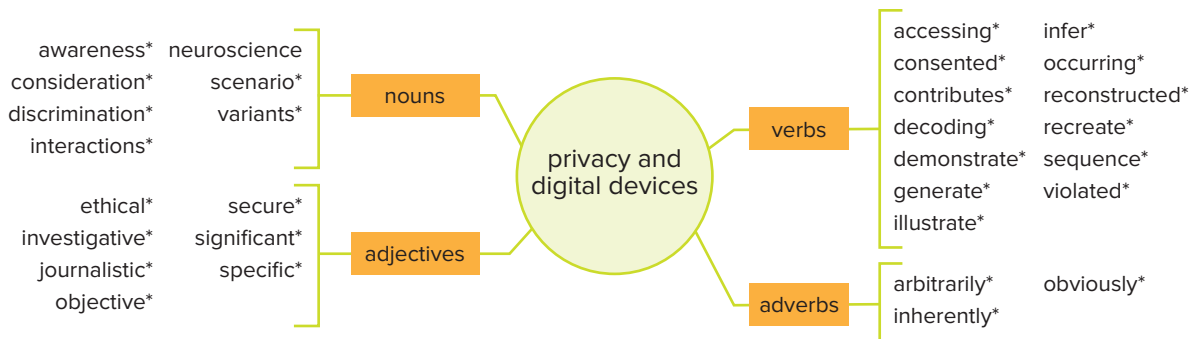
- ③ *Phishing* uses people's willingness to share their private information without thinking of the consequences. Why do people give up information such as passwords to strangers?

- ④ Scams often involve offering people love or money to get their bank information and conduct illegal transfers. Why might people not report these scams when they fall for them?

B. Compare your answers, first with a partner, then in a group. Choose the best answers.

VOCABULARY BUILD OVERVIEW

Below are the key words you will practise in this chapter. Check the words you understand then underline the words you use. Highlight the words you need to learn.



*Appears on the Academic Word List



Inferring Attitudes

When you listen, you pay attention to the words people use, the way they put those words together in sentences, and the attitude(s) the words convey. Attitude refers to how speakers feel about what they are saying: positive, negative, or neutral. In some cases, speakers can express these three attitudes in one sentence.



A. One way for speakers to express their attitude is through the use of adjectives and adverbs. Read the following sentences adapted from Listening 1 and decide whether the message is positive, negative, or neutral based on what is said and the words in bold.

SENTENCES	POSITIVE	NEGATIVE	NEUTRAL
1 But there are also concerns that these vast databases pose a significant risk to our privacy.			
2 Now, in this particular test, people are given photographs of just the eye region.			
3 As you can imagine, everyone is perfectly good at this.			
4 So we get a small fraction of the total genome but the information that's contained is tremendous .			
5 I've seen papers where faces are reconstructed based on genomic data from, for example, 23andMe data sets that are eerily close to the actual person.			
6 It's fair to have a reasonable degree of faith.			

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- B.** Attitudes can also be expressed by applying different stress patterns to words in a sentence or by changing the tone, for example by turning a statement into a question. With a partner, read the following sentences aloud. How does phrasing the words as a statement or a question affect your impression of the speaker's attitude? Which one expresses more certainty, and which one more doubt?
- It's fair to have a reasonable degree of faith.
 - It's fair to have a reasonable degree of faith?
- C.** Try reading the sentences above again, stressing one word more than others. How does this seem to change the speaker's attitude?
- D.** Read the paragraph from Listening 3. What is the speaker's attitude toward the topic? List three adjectives or adverbs that convey this attitude.

ATTITUDE: ☐ POSITIVE ☐ NEGATIVE ☐ NEUTRAL

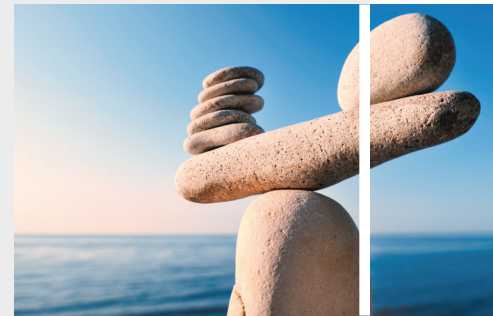
ADJECTIVES AND ADVERBS: _____

I think there is a very high level of vulnerability. The reason is that you don't have to actually pick up entire thoughts. There are signals that our brains make when we see something that we recognize or we see something that's unexpected. And these are very specific shape waveforms that can be detected. So if the electrodes or the recording devices are accurate enough and the processing is available, you can detect these things. And this leads to an opportunity to interact with a person to extract information.



Identifying Pros and Cons

When you are faced with a difficult decision, it helps to consider the pros (points in favour) and cons (points against). Although you may have the same number of pros as cons, one pro may override a dozen cons. For example, points in favour of gambling may include fun and social opportunities, but a single con—the threat of debt—may outweigh both of these.



- A.** Read two excerpts from Listening 1. Highlight the pros and underline the cons. Compare your answers with a partner.

So, these huge databases like 23andMe are extremely valuable for researchers such as Mr. Warrier and they should be very useful for identifying the genetic roots of disease—from mental disorders like autism, schizophrenia, and dementia, to things like heart disease, or even cancer.

I think it's fair to have a reasonable degree of faith that companies like 23andMe are doing a decent job. I think it's important though not to think that it's completely safe. Every little bit of information about you that is revealed can potentially be correlated with third-party data sources to start to chip away at your privacy. And it's important to recognize those dangers.

B. Pros and cons are often presented to support opinions. Read the following three sentences. With a partner, decide whether each one presents a pro or a con. Try to identify the speaker's motivation in each sentence. For example, what language and examples does the speaker use to persuade listeners?

- ① We carry our phones like we're married to them and we don't really realize how much information we're giving away to companies when we download smartphone apps.

☐ PRO ☐ CON

MOTIVATION: _____

- ② You're part of an exclusive group that is going to get a sneak peek at our daily horoscope app.

☐ PRO ☐ CON

MOTIVATION: _____

- ③ Along with the latest in robots and entertainment systems, an entire industry is springing up now that's aimed at giving you back some personal power.

☐ PRO ☐ CON

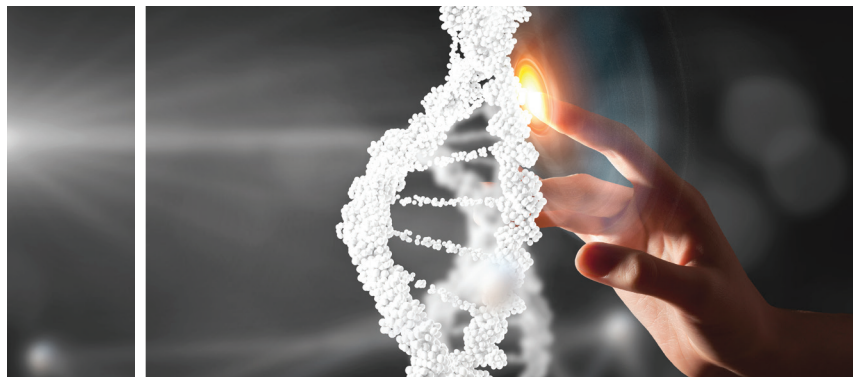
MOTIVATION: _____

C. Consider something you would like to do and your motivation for doing it. In a group, discuss the pros of the action and try to persuade your group members. Your group members identify the cons and try to persuade you that it's not a good idea.

LISTENING ①

Is Your Genetic Privacy Safe?

Do you know a secret code? Perhaps not, but your body does. DNA (deoxyribonucleic acid) is the coded information that determines a lot about who you are—from your ethnicity, to diseases you might suffer from, to how empathetic you are. Would you share that information with others?



VOCABULARY BUILD

In the following exercises, explore key words from Listening 1.

- A.** Match each key word to the word that forms a collocation with it. Then, with a partner, take turns using each collocation in a sentence.

KEY WORDS		WORDS THAT FORM COLLOCATIONS
① contributes	_____	a) statistically
② discrimination	_____	b) logical
③ scenario	_____	c) racial
④ sequence	_____	d) financially
⑤ significant	_____	e) doomsday

- B.** Read the key words below and write a definition for each one. Then have a short conversation with a partner, using the key words. For example, you may begin with, "Have you ever *consented* to someone else using one of your passwords?" Continue until you have used all the words.

- ① consented _____
- ② consideration _____
- ③ inherently _____
- ④ reconstructed _____
- ⑤ variants _____

- C.** Listening 1 includes some technical language about genetics, the study of heredity. With a partner, match the terms with their meanings; look up any you don't know.

TERMS		MEANINGS
① anonymize data	_____	a) material that carries the genetic information of living organisms
② cognitive traits	_____	b) discovering the properties of a set of genes
③ DNA	_____	c) the complete set of genes in a cell or organism
④ genome	_____	d) make it impossible for others to identify an individual from collected information
⑤ genome sequencing	_____	e) visible characteristics that relate to a genotype
⑥ phenotypes	_____	f) aspects of thinking processes

Before You Listen

- A. Read an excerpt from Listening 1. What are the pros and cons of the 23andMe database?



As more and more people get their genomes scanned, huge genetic databases can be assembled. And these become a fantastic resource for scientists both inside and outside these companies to study. More than sixty research papers have been published using genetic information garnered from the 23andMe database. This kind of data is exactly what scientists need to identify the roots of complex diseases and disorders. But there are also concerns that these vast databases pose a significant risk to our privacy—and that we don't really understand what we're doing when we give private companies—or any organization—control of our genetic information.

PROS: _____

CONS: _____

While You Listen

- B. Listen carefully for the interview points below; the questions have been omitted. Listen again to identify the pros and/or cons that are presented for each point. Listen a third time to add information about the speaker's attitude: *positive*, *neutral*, *negative*, or *divided* between positive and negative.

INTERVIEW POINTS	PROS AND CONS
1 23andMe, one of a number of groups that in recent years have been selling a new kind of service ...	PROS/CONS: <i>tell you about your ancestry and risk for disease</i> ATTITUDE: <i>positive</i>
2 But this isn't all about you. As more and more people get their genomes scanned, ...	PROS/CONS: ATTITUDE:
3 More than sixty research papers have been published using genetic information ...	PROS/CONS: ATTITUDE: <i>divided</i>
4 Varun Warriar is one of the researchers who has been able to use the 23andMe data in his work ...	PROS/CONS: ATTITUDE:
5 We were interested in a whole bunch of cognitive traits that contribute to ...	PROS/CONS: ATTITUDE:
6 We wanted to look at the genetic variants in your genome that contribute to ...	PROS/CONS: ATTITUDE:
7 Since 23andMe has got privacy and legal clauses, they can't share ...	PROS/CONS: ATTITUDE:

INTERVIEW POINTS	PROS AND CONS
8 Yes, so what happened, I think close to 90,000 customers from 23andMe ...	PROS/CONS: ATTITUDE:
9 We found that approximately a third of the total variants in performance ...	PROS/CONS: ATTITUDE:
10 What we were able to identify was	PROS/CONS: ATTITUDE:
11 So, these huge databases like 23andMe are extremely valuable for researchers ...	PROS/CONS: ATTITUDE:
12 But some researchers think you should know that there are privacy risks ...	PROS/CONS: ATTITUDE:
13 I would say extremely valuable. ...	PROS/CONS: ATTITUDE:
14 Well, for example, I've seen some interesting papers, where things like ...	PROS/CONS: ATTITUDE:
15 Very true. That's absolutely true. I think the consideration should be that you know.	PROS/CONS: ATTITUDE:
16 Now we do have a law being passed ...	PROS/CONS: ATTITUDE:
17 Indeed. And those laws ... We have a similar law in the United States. They're ...	PROS/CONS: ATTITUDE:
18 Now 23andMe does make efforts to anonymize their data.	PROS/CONS: ATTITUDE:
19 I think it's fair to have a reasonable degree of faith that companies like 23andMe are doing a decent job.	PROS/CONS: ATTITUDE:
20 It's a danger. It's a danger and that makes re-identification of subjects ...	PROS/CONS: ATTITUDE:
21 Right, so for example, if you posted on Facebook that you had ...	PROS/CONS: ATTITUDE:

After You Listen

- C. Sometimes, an individual's personal medical information might benefit a whole group. After listening to the interview, what do you think is generally more important: the individual's right to privacy, or the public's right to medical information that might help save lives?

- D. Based on what you can infer from Listening 1, answer the following questions. After, check your answers with a partner and see if you agree.

- ① Why might companies such as 23andMe be considered controversial?

- ② As a science student, why might Varun Warriar be less concerned about genetic data privacy?

- ③ What is a possible practical application of understanding someone's level of empathy?

- ④ Warriar's research shows that genetics might control *part* of a trait. What other factors might control, for example, a person's intelligence?

- ⑤ Why might you decide that posting your genetic information on Facebook is a bad idea?

- E. Based on what you learned in Listening 1, answer the questions and then discuss your answers with a partner.

- ① Would you get your DNA sequenced? Why or why not?

- ② Would you share your DNA results to help further medical research? Why or why not?

- ③ Would you worry about privacy if your DNA showed you might inherit a dangerous disease? Why or why not?





Expressing Beliefs, Facts, and Opinions

Do you think the number thirteen is unlucky? If so, that's your *belief*. Do you think that some people are superstitious? That is a *fact*; it's true and can't be argued. Do you think that people who are superstitious are silly? That's your *opinion*. We use adverbs and modals to talk about beliefs, facts, and opinions in different ways.

- **Beliefs** are things that are accepted as true by some people even though they can't always be proven.
- **Facts** are things that can be proven or that most people believe are true. Without visiting a distant star, we can use scientific theories to prove that it is hot.
- **Opinions** indicate how you feel about something; they don't depend on facts.

A. Expressing beliefs and facts tends to rely on direct statements and verbs such as *be*, for example, *Hacking is illegal*. However, certain phrases are also used to signal beliefs and facts. Read the following phrases and underline those that indicate beliefs and facts.

- | | |
|------------------------------|---------------------------|
| ① <u>It's certain ...</u> | ⑥ Personally, I think ... |
| ② As far as I understand ... | ⑦ The fact is ... |
| ③ It seems to me that ... | ⑧ In my opinion, ... |
| ④ It's well known that ... | ⑨ The point is ... |
| ⑤ I believe ... | ⑩ There is no doubt ... |

B. The phrases in task A that you did not underline indicate opinions. Read the following opinions and highlight the adverbs. Then, work with a partner and take turns using the modals in parentheses to express the same ideas.

- ① (could) Apparently, it's easy to listen to others' phone conversations.

- ② (may) Perhaps it's hard to find the special equipment to do so.

- ③ (might) If reporters want a story badly enough, maybe that's what they do.

- ④ (might) But they could possibly go to jail.

- ⑤ (must) Apparently, the police think it's a big deal.

- ⑥ (must) Anyway, it's certainly a terrible way to collect news.

- C. Decide if each of the following sentences expresses a belief, a fact, or an opinion. After, highlight the modals.

SENTENCES	BELIEF	FACT	OPINION
① I think there is a very high level of vulnerability.			
② I should say I'm sounding a bit alarmist here, but I believe that it's very important and part of our mission.			
③ Varun Warriar is a PhD candidate in the department of psychiatry at the University of Cambridge in the United Kingdom.			
④ I would say extremely valuable.			
⑤ I think it's important, though, not to think that it's completely safe.			



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Accuracy Review

LISTENING 2

VIDEO

Privacy, Consent, and Investigative Journalism

Although you might take some measures to protect your privacy, you probably ignore other things that could affect what information you are sharing, especially related to social media. For instance, how often do you read the terms and conditions that come with software applications?

VOCABULARY BUILD

In the following exercises, explore key words from Listening 2.

- A. Many words have noun, verb, adjective, and adverb forms. Fill in the chart with the missing forms. Key words are in black.

NOUN	VERB	ADJECTIVE	ADVERB
①	accessing		
②		investigative	<i>investigatively*</i>
③		journalistic	<i>journalistically*</i>
④ objective			
⑤	illustrate		

* uncommon usage

- B. Find a synonym for each key word then write a sentence with the key word.

- ① demonstrate (v.) _____
 ② secure (adj.) _____



- 3 ethical (adj.) _____
- 4 obviously (adv.) _____
- 5 violated (adj.) _____

C. With a partner, read the following sentences and use what you learned in Focus on Critical Thinking (page 57) to think of one or more cons for each pro. Repeat the words in bold in your answers and try to include other key words from this Vocabulary Build.

- 1 Pro: Because of better labelling practices, it's now easy to make **ethical** choices when you shop.
Con: _____
- 2 Pro: Having a key **objective** in your life means you waste less time.
Con: _____
- 3 Pro: If you use privacy settings on your phone, your data is usually **secure**.
Con: _____

Before You Listen

A. Read an excerpt from Listening 2 and answer the questions. After, discuss your answers with a partner and see if you agree. If possible, try to give examples to support your ideas.

I need to get your attention. As a journalist, whether I'm writing for online or television, I'm competing against all that clutter out there to try to get you to look at my story. And often, that means journalists have to figure out just how far to push to get you to take notice.

- 1 In your opinion, is it acceptable for journalists to use tricks to get your attention? Why or why not?

- 2 What do you think the speaker means by "all that clutter out there"?

- 3 What are some ways journalists might "push to get you to take notice"?

- B.** Listening 2 explores how people don't pay attention to what they are agreeing to when they accept a company's terms and conditions. Which of the following would you accept? Discuss with a partner and share reasons for your answers.

I WOULD GIVE A COMPANY PERMISSION TO	YES	NO
① access contact data on my phone		
② access my camera		
③ access my microphone		
④ read my call logs (records of my phone calls)		
⑤ read my text messages		
⑥ track my location		

While You Listen

- C.** Watch once to get the general idea. Watch again to indicate the beliefs and opinions corresponding to the prompts. Watch a third time to check your notes.

SENTENCES	BELIEFS AND OPINIONS
① I need to get your attention. As a journalist, ...	BELIEFS: <i>competing against clutter</i> OPINIONS: <i>need to push to get attention</i>
② What participants don't know is ...	BELIEFS: • people don't care about • they will give away
③ Shocked by how easy it was for ...	BELIEFS: easy for CBC journalists
④ But not everyone thinks ...	OPINIONS: some don't think
⑤ You basically broke ...	OPINIONS: the speaker's
⑥ So did the journalist go too far to illustrate the point?	OPINIONS: can see ethical
⑦ So we all live in this app-obsessed world.	BELIEFS: • we are obsessed with • we don't realize how much OPINIONS: people need
⑧ And so, you got it to that point and you could've just said to people, "Hey, look what you just agreed to."	OPINIONS: it was interesting to
⑨ Like I need to do a better job than skimming.	BELIEFS: needs to do
⑩ Okay, so my first thought was, okay, if you just go into someone's phone, they could be ...	BELIEFS: they could be in
⑪ So obviously, we had a lot of team discussions. We didn't want to invade ...	OPINIONS: • didn't want to invade • it was about

SENTENCES	BELIEFS AND OPINIONS
12 Nothing. And if we would have found it, journalistically, legally, ethically, we wouldn't ...	BELIEFS: <i>have aired it (shown it on TV)</i>
13 Yeah, I know, it is, right? Because that's his buddy. He doesn't expect ...	BELIEFS: he doesn't expect
14 Right. So, it is personal information but honestly, I feel like we ...	OPINIONS: <i>erred on the conservative side</i>
15 Okay and so we know that ...	BELIEFS:
16 No, not everybody did. But, you know, at the end of the day, big picture, what we were trying to prove ...	BELIEFS: it was
17 We showed them. And I think that's the thing.	OPINIONS: you need to show
18 I'm sure if we would have found anything like that, ...	BELIEFS: it would have been different if
19 And you know, everyone of course is going to talk about, ...	BELIEFS: their devices are
20 I hope so. I mean, one example that I was, you know, using yesterday when talking with someone is, you know, you have your phone now and you can look at a privacy settings page ...	BELIEFS: <i>phones can display who has access to your data</i> OPINIONS: <i>we need something that gives consumers better understanding of what devices are using their information</i>

After You Listen

D. Check your answers to task A. Do you still feel the same way? Why or why not? Were the journalists' tactics ethical? Discuss with a partner.

E. Read the statements and discuss the questions with a partner. Once you agree on an answer, write it down.

- The journalists' purpose was to make people aware of privacy abuses. Do you think their approach was effective? For example, would the report make you change your habits? Why or why not?

- The method was to create an app that offered horoscope information. Do you think the response would be the same if the app was for banking? Why or why not?

- The journalists were surprised at how little attention people paid to the agreements. Were you surprised? Why or why not?



- 4 The man who claimed his reading skills were “on point” didn’t seem to have read the agreement very carefully. How would you feel seeing this program if you were that man?

- 5 The point of mentioning Snoop Dodd was to prove that the journalists had hacked the phone. Did this comment go too far? Why or why not?

- 6 The comment, “It’s kind of creepy,” likely referred to the idea that others could know so much about you. Are you concerned about information that companies have about you? Why or why not?

- 7 The comments about the Consumer Trade Show point out that other home devices might be spying on us. Would this make you less likely to buy Internet-connected home devices? Why or why not?

- 8 The question of whether or not the journalists went too far was probably not part of the original plan for the report. Why might it have been included?



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Journalism

- F. How would you feel if you had been picked for the journalists’ experiment? Do you think you would have read the agreement materials more carefully? How would you feel after you found out the journalists had accessed your information? In a group, explain why you would or would not have taken part and, if you had, how you would feel after seeing yourself on the program.

Academic Survival Skill

Measuring Attitudes with Likert Scales

Collecting data is done in various ways, such as through observation and experimentation. Other methods include structured conversations and questionnaires designed to collect data on what people think. One of the most common methods of collecting data about attitudes and opinions is a Likert scale survey.





A Likert scale typically includes five answer points; seven- and nine-point scales are sometimes used, but it can be difficult to understand subtle differences with so many points. Regardless of the choice, the central point indicates a neutral answer. A Likert scale is most often used to measure a response to a statement in terms of agreement, frequency, importance, or likelihood. In the following examples, there is a scale for each item, but it is more common to have a single scale for a series of items.

A. Indicate your response to each of the following items. When you have finished, compare your answers with those of a partner.

AGREEMENT

- ① People are concerned about privacy more than ever before.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

FREQUENCY

- ② I change my technology passwords ...

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
very frequently	frequently	occasionally	seldom	never

IMPORTANCE

- ③ Maintaining your privacy on social media is ...

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
very important	important	moderately important	of little importance	unimportant

LIKELIHOOD

- ④ If I am asked by a stranger to share a message online, I will do it.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
almost always true	usually true	sometimes true	usually false	almost always false

B. The above Likert scale items are about privacy. Write one more Likert scale item about privacy, fill in the response scale, and ask five students for their responses. Then, in a group, discuss your responses to all the items to see where you agree and disagree.

TYPE OF QUESTION: _____

STATEMENT: _____

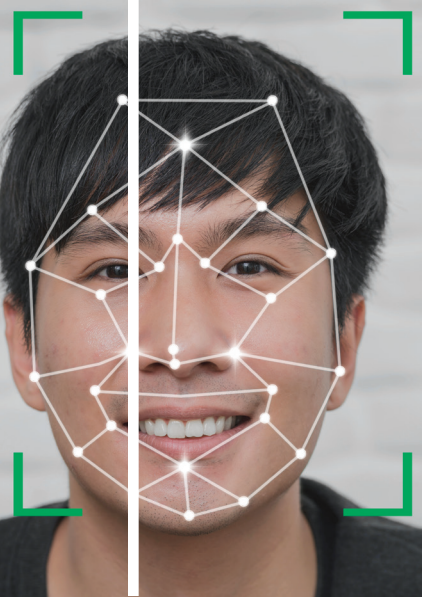
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



The best way to display and compare Likert scale data is on a bar chart.

WARM-UP ASSIGNMENT

Explore a Topic Related to Privacy



You probably have your own unique attitudes toward privacy. Some people are extremely careful to lock their doors but never change their phone passwords. A few people read software-licensing agreements carefully, while most don't. In this assignment, use what you learned in Academic Survival Skill (page 68) to find out what other students think and do about privacy.

A. This chapter lists several areas where privacy is threatened. Working with a partner, choose one topic to research about privacy. You may choose a new topic or one of the following:

- DNA and medical records
- facial recognition
- government surveillance
- home digital assistants
- Internet-connected devices like dishwashers and shower heads
- passwords
- social media
- software-licensing agreements

B. Brainstorm your topic and think of areas of concern where other students will have different points of view in terms of agreement, frequency, importance, and likelihood.

C. Create a Likert scale survey with statements.

AGREEMENT

1 STATEMENT: _____

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

FREQUENCY

2 STATEMENT: _____

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
very frequently	frequently	occasionally	seldom	never

IMPORTANCE

3 STATEMENT: _____

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
very important	important	moderately important	of little importance	unimportant

LIKELIHOOD

4 STATEMENT: _____

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
almost always true	usually true	sometimes true	usually false	almost always false

- D. Interview six students using your Likert scale survey. Ask follow-up questions and use what you learned in Focus on Listening (page 56) to infer the students' attitudes.
- E. Write summary statements for all of their responses and keep your notes for use in the Final Assignment. Use phrases such as
- Only one student thought ...
 - Two of six students believe ...
 - All students agree that ...



Use feedback from your teacher and classmates on this Warm-Up Assignment to improve your speaking skills.

LISTENING ③

Protecting Our Neuroprivacy

It is easy to know when you're excited: your breathing changes, your body becomes tense, and your senses are heightened. But what is your brain doing? Not only can researchers tell that it is active, but they are also learning to translate its electrical signals to discover what you're thinking.

VOCABULARY BUILD

In the following exercises, explore key words from Listening 3.

- A. Identify the root word for each of the following key words. Use both the key word and the root word in a sentence. Compare sentences with a partner's and choose the best ones.

KEY WORD	ROOT WORD	SENTENCE
① arbitrarily	<i>arbitrary</i>	<i>An arbitrary decision is one that is made without reason, that is, arbitrarily.</i>
② awareness		
③ decoding		
④ interactions		
⑤ neuroscience		
⑥ recreate		





- B.** Use five of the words in the box to complete the paragraph. Three of the words are not appropriate.

arbitrarily generate infer interactions neuroscience
occurring recreate specific

Something that is increasingly _____ is the installation of security cameras on local streets. From this, we can _____ that governments are possibly more nervous about crimes. The installation of these cameras must _____ enormous profits for the companies that manufacture them. Sometimes a _____ home might install its own street cameras, particularly if a crime has been committed nearby. But one finding from _____ is that our perceptions of crime and danger are not always related to facts, so we probably have more cameras than we need.

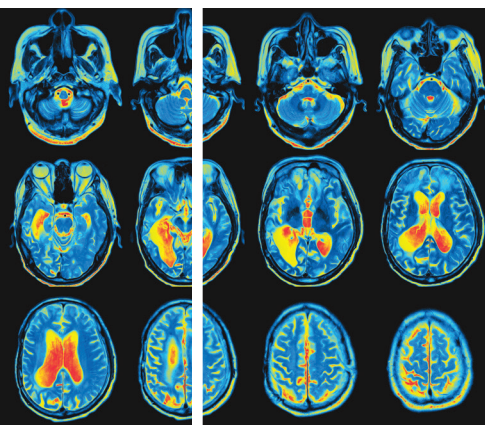
Before You Listen

- A.** Read an excerpt from Listening 3 and answer the questions.

In principle, you can decode any kind of thought that is occurring in the brain at any given point in time. So if we have a suitable brain recording device, we can measure those patterns of activity and infer the relationship between what was going on in your brain and your behaviour or your thought. And you can think about this sort of like writing a dictionary.

- ① The phrase *in principle* suggests that the process _____.
 - a) is well established
 - b) is completely unknown
 - c) has a theoretical basis
 - ② The brain recording device is likely to measure _____.
 - a) the weight of the brain
 - b) electrical activity
 - c) how quickly you think
 - ③ The phrase *writing a dictionary* suggests that _____.
 - a) the results are probably true for most people
 - b) everyone would have their own dictionary
 - c) the brain could interface with word processing
- B.** Knowing what is going on in your brain would presumably be of interest to many different people. Why might each of the following groups be interested? Write a brief explanation, then discuss your answers in a team.

- ① DOCTORS: _____
- ② SPORTS COACHES: _____
- ③ BUSINESS PEOPLE: _____



While You Listen

C. Read the questions and the beginnings of the answers. Then listen once to get the general idea. Listen again and take notes to fill in the answers. Listen a third time to check your notes and add details.

- ①** You have done some work on decoding language and visual images from the brain. Let's start with language. How do you decode words that are happening in the brain?

1.1 In principle you can decode any kind of thought that _____

1.2 And you can think about this sort of like writing a _____

1.3 And we essentially play the same game in _____

1.4 And by doing that over a very long period of time, we can build up

- ②** How rich is your dictionary at the moment; how much detail can you get?

2.1 At the moment, we typically generate _____

- ③** But you're saying that if I'm watching a movie you would be able to tell from my brain activity whether, what type of movie I was watching—whether it was say, a space movie or a romantic movie or the characters in it? You can see that kind of detail?

3.1 When you say you can decode this or you can tell what somebody is thinking, the question is _____

- ④** So what are your biggest concerns when it comes to things like our neural privacy?

4.1 As our ability to measure the brain proceeds, our ability to decode the brain will also advance and eventually you will be able to

- ⑤** When it comes to these consumer brain-computer interface devices, how vulnerable are we and how urgent is this issue?

5.1 I think there is a very high level of vulnerability. The reason is that

5.2 So for example, if I showed you in a video game _____

6 Well, how did you test all of this in your laboratory?

6.1 So we have an EEG system and we put it on _____

6.2 Subliminal images can be put in the game. By monitoring _____

6.3 I have a graduate student who's working on different ways to extract
things like _____

6.4 Let me go back and say an important thing is _____

After You Listen

D. It is now a common crime for people to steal others' personal credit card information, but there are probably no laws against collecting people's thoughts. Are laws needed to protect against this invasion of privacy? Why or why not? Discuss your answers in a small group.

E. Write answers to the following questions, then compare your answers with a partner.

- 1** Say the words *dogs* and *cats* out loud. Do you have a sense that the mention of dogs and cats causes different patterns of activity in your brain? Explain.

- 2** The research shows that information can be collected while people watch movies. Would you go to a movie theatre that could monitor information about you as you watched? Why or why not?

- 3** Besides being able to identify objects, MRI can determine people's emotions. Would a phone app that identified your emotions be useful? Why or why not?



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- ④ It's not yet possible for software to determine most of the details you recall about a movie. Would you want an app that would help you recall details your conscious mind may have forgotten? Why or why not?

- ⑤ If politicians could identify your political opinions, how might this change decision-making in governments? Give one example.

- ⑥ The idea of being able to determine people's PIN numbers from their thoughts suggests that they will no longer be secure. What might replace PIN codes?

- ⑦ In a general sense, should research on improving the ability to read the brain be more carefully controlled by the government? Why or why not?



Making Counterarguments

When you begin a serious discussion, you are usually prepared with a set of arguments. Similarly, those with opposing points of view have their own sets of arguments. In order to go beyond just presenting, you need to examine each other's points and respond with counterarguments.

- A.** Counterarguments are often based on problems in the other person's logic. Imagine the topic is *online privacy* and the other speaker is arguing that it is not a concern for most people. Match the problems in logic to the example sentences.

PROBLEMS IN LOGIC		EXAMPLE SENTENCES
① FLAWED ANALYSIS: The speaker doesn't understand or explain the problem.	_____	a) Online privacy is a concern, but only for those who post personal information online.
② FLAWED FACTS: The speaker's facts are wrong or are perhaps just opinions.	_____	b) No one really cares much about privacy these days.
③ FLAWED VALUES: The speaker is misinformed or mistaken about people's beliefs.	_____	c) If online privacy was a problem, wouldn't the government act?
④ SUPPORTS THE OTHER SIDE'S ARGUMENT: The speaker makes points that support your ideas.	_____	d) There was no concern about online privacy a hundred years ago.
⑤ TRUE BUT IRRELEVANT FACTS: The facts don't relate to the problem.	_____	e) Internet companies protect our online privacy.

Presenting a counterargument begins with recognizing and explaining problems in logic. Often, this is done with a sequence of statements:

- **IDENTIFY THE PROBLEM:** Online privacy requires better protection.
- **SUMMARIZE WHAT THE OTHER SPEAKER SAYS:** (The other speaker) suggests that online privacy is unimportant. Many people believe this is true.
- **INTRODUCE EXPERT EVIDENCE:** However, in a 2017 study, it was found that ...
- **SUMMARIZE YOUR POINT OF VIEW:** So, this all suggests that (the other speaker) is mistaken and that privacy does require better protection.



In any academic discussion, it is important to always remain polite.



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Focus on Speaking

B. In Listening 1, Bob McDonald argues against all the concerns about the use of genetic data to recreate facial images. He says, “But why should I worry if somebody could see my face? I mean, people are putting their face on Facebook all the time.” Use the following format to create a counterargument, then practise the discussion with a partner.

- **IDENTIFY THE PROBLEM:** _____

- **SUMMARIZE WHAT THE OTHER SPEAKER SAYS:** _____

- **INTRODUCE EXPERT EVIDENCE:** _____

- **SUMMARIZE YOUR POINT OF VIEW:** _____

C. With a partner, consider the following topic and adopt opposite points of view. Take turns offering counterarguments to your partner’s points. Once you are confident, practise your discussion in a larger group: each student should have a chance to share and build on arguments for and against.

TOPIC: Most online privacy problems arise from people being careless.

FINAL ASSIGNMENT

Discuss Privacy in a Group

Working with a partner, use everything you have learned in this chapter to take part in a discussion on privacy. Share data from your Warm-Up Assignment (page 70) and your opinions and beliefs about that data.

- A.** With your partner, meet with two or more other pairs of students and introduce your topic. If possible, choose students with a different privacy topic than yours.
- B.** Take turns introducing your topics and summarizing the results of your Likert surveys from the Warm-Up Assignment. As the other students explain their points, use what you learned in Focus on Listening (page 56) to infer their attitudes. Share your own beliefs and opinions based on what you learned in Focus on Accuracy (page 63).

- C. Use what you learned in Focus on Critical Thinking (page 57) to identify the pros and cons around the privacy issues raised by other group members. For example, licensing agreements are necessary to protect companies (pro) but can be misunderstood or overlooked by consumers (con).
- D. Use what you learned in Focus on Speaking (page 75) to examine arguments and provide counterarguments. Remember to identify problems in logic in the other groups' presentations.
- E. Assess your discussions and, as a group, decide how you could improve your discussion techniques next time.



Critical Connections

Listening 3 mentions the danger of an individual's genetic information revealing personal and private details about his or her family members. For example, if your cousin had a DNA test that showed a gene for a particular disease, an employer might unethically and possibly illegally learn of it and deny you job opportunities on the suspicion that you might develop the same disease.

- A. Consider these three scenarios.
 - Your cousin has a DNA test and, because a shared risk for a certain disease is discovered, you are able to take steps to avoid it.
 - After you are fired from your job, you find out that your employer obtained access to your cousin's DNA test results and let you go out of fear of future medical costs.
 - You are happily engaged to be married when your partner suddenly breaks off the relationship. You find out that her parents hired a "genetic detective" and decided, on the basis of your cousin's DNA test results, to discourage the marriage.
- B. Based on the above three scenarios, what are the pros of maintaining your genetic privacy? What are the cons? Use what you learned in Focus on Accuracy (page 63) to discuss beliefs, facts, and opinions with your partner around the issues.
- C. In a group, discuss the pros and cons of genetic testing and laws that might prevent genetic discrimination. Use what you learned in Focus on Accuracy to share your beliefs and opinions and what you learned in Focus on Speaking (page 75) to offer arguments and counterarguments around genetic discrimination.

