金沢大学

英語

問題

2019年度入試

【学部】 人間社会学域、理工学域、医薬保健学域

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【試験時間】 90分

1 Read the following passage and answer the questions in English.

What We Learn from 50 Years of Kids Drawing Scientists

Between 1966 and 1977, the social scientist David Chambers asked 4,807 elementary-school children, mostly from Canada and the United States, to draw a scientist. Their illustrations regularly featured white coats, eyeglasses, lab equipment, and books. Often, the depicted scientists exclaimed things like "I made a discovery!" or simply "Wow!"

The Draw-a-Scientist Test has become a classic piece of social science, and has been repeated many times over the intervening decades to understand how children perceive scientists. But when David Miller, from Northwestern University, looked at Chambers' original data, published in 1983, one trend leaped out. Of the almost 5,000 drawings produced within the study, just 28 depicted a female scientist, and all of those were drawn by girls. Not a single boy drew a woman.

"When I describe these results to other researchers, they usually take a pessimistic attitude that maybe things haven't changed that much," says Miller. But that's not true. Miller and his colleagues have now analyzed five decades of data from 78 studies, where more than 20,000 children were asked to draw scientists. And they've shown that over that period, children have become more likely to draw women scientists. From the 1980s onwards, on average, 28 percent of children drew female scientists, compared to 0.6 percent in Chambers' original study.

This makes sense. Since the 1960s, female representation in science has substantially increased. In the United States, at least, more women are graduating with science degrees, including 48 percent of chemistry degrees in 2015 compared to just 19 percent in 1966. Female scientists, though still often outnumbered by male peers, more frequently appear in textbooks, magazines, and TV shows aimed at children. "It's optimistic that children's stereotypes change as gender roles change in society too," says Miller.

Still, today's children are drawing at least twice as many male scientists as female ones. "Twenty-eight percent for women scientists is still (E)nowhere close to parity," says Sapna Cheryan, a researcher from the University of Washington who studies gender disparities in science. She also notes that while the proportion of women in fields like chemistry and biology has risen over the decades, women still get fewer than 20 percent of degrees in computer science, engineering, and physics. "I would be curious what an analysis of a Draw-a-Computer-Scientist-or-Physicist test would show over time," she says. "Such an analysis could help us identify which specific fields need the most work in diversifying their representations."

"Gender stereotypes of scientists not only shape adolescent girls' and boys' perceptions of who is a scientist, but also influence their perceptions of who *can be* a scientist," says Jocelyn Steinke, from Western Michigan University, who studies media representation of science. They might influence whether female students see a place for themselves in science, and whether they look to scientific careers at all. They might also influence how male students see their female peers, or interact with them in professional settings later on in life.

"Stereotypes can play an important role in (F)constraining children's beliefs of what they can and cannot do," adds Toni Schmader, from the University of British Columbia, who studies stereotypes and social identity. "If we can change these representations, young girls might more easily be able to envision a future for themselves in science."

Miller's team also found that the gender stereotypes about scientists are stronger among boys than girls. Excluding Chambers' original study, girls drew female scientists around 45 percent of the time, while boys did so just 5 percent of the time. That's (G)hardly unexpected: Children usually draw their own gender even when asked to draw a generic person, let alone a scientist.

Still, it's notable that even girls, as they grow up, become more likely to draw scientists as men. At age 6, girls draw 70 percent of scientists as women, but this proportion flips at around ages 10 to 11 and by 16, they draw around 75 percent of scientists as men. "Middle school is a critical period in which they're learning this gendered information about what a scientist is," says Miller.

The Draw-a-Scientist Test has been widely used because it is so easy to administer. But there's some controversy about what the test actually measures or reveals. Some critics have suggested that perhaps children just draw more men (H)regardless, but Miller says that's not true. For example, in 2008, one team of researchers showed that elementary-school children drew 66 percent of scientists as men, compared to just 40 percent of veterinarians and 25 percent of teachers. They weren't putting some universal gender bias onto paper, but instead accurately reflecting the proportion of women and men in various professions.

(Adapted from "What We Learn from 50 Years of Kids Drawing Scientists," *The Atlantic*, May 20th, 2018)

Question 1: Based on the passage, answer the following questions (A) to (D) in English.

(A) How many boys in David Chambers' study drew a female scientist?

(B) Why has the percentage of female scientist drawings increased over the past 50 years? Give one reason.

(C) According to Sapna Cheryan, what fields of science still have a low proportion of female researchers?

(D) According to David Miller, when does the number of male scientists become greater than female scientists in the drawings made by girls?

Question 2: Which of the following is closest to the meaning of the underlined words or phrases (E) to (H)?

(E) "nowhere close to parity"

1) far from equality　2) not far from equality
3) hardly unequal　4) slightly unequal

(F) "constraining"

1) monitoring　2) restricting　3) developing　4) strengthening

(G) "hardly unexpected"

1) very unlikely　2) highly predictable　3) quite surprising　4) long awaited

(H) "regardless"

1) without thinking so much　2) because it's easier
3) no matter what profession　4) with a slight respect

Question 3: Another professional field that has a gender imbalance is politics. In the next 10 years, do you think there will be more female politicians in Japan? Why or why not? Answer in 25 to 35 English words.

2 Read the following passage and answer the questions in English.

How Technology Makes Us Anxious

Studies and magazine articles tell us that technology is making us more anxious. A new study of over one million American high school students found that teens who spend more time on screens and less time on non-screen activities like actual conversation, exercise, or homework were psychologically worse off. What's more, the study found that when kids reported a shift to more screen-based activities, a decline in happiness followed, implying a cause-and-effect relationship.

But how exactly does this happen? What is it about technology that leads to anxiety? Here are five big reasons that technology makes us anxious.

Technology insulates us from small uncertainties, leaving us vulnerable to the big ones.

Uncertainty is the root of anxiety. We ask ourselves questions: "What's going to happen?" "What do they think of me?" "What if this goes badly?" In some ways, technology takes away uncertainty. Smartphones allow us to control our world and our consumption like never before. We can stay immersed in a controlled world of our choosing for long stretches. We can be guided by Google Maps, read reviews before spending money on trips or activities, and see exactly who's on the invitation guest list. But as a result, we have less time to practice navigating an uncertain world. You'd think that taking away uncertainty would make us less anxious. But instead, because technology has lessened our experience handling uncertainty, we're less prepared to deal with it when it arises.

Technology allows us to avoid people (and the negative emotions that go with people).

Sure, we all want to dodge the crowds and no one likes waiting in long lines, but when people-avoidance becomes a default, we end up with a shortage of experience. For one thing, we don't have as much information about what is likely to happen when we spend time with other people, so we most often predict worst-case scenarios. Secondly, when we avoid people, our confidence is shaky. We're not sure how to handle things, think of ourselves as awkward, and step back from future opportunities.

On-screen communication is really different from face-to-face.

Remember when email first became popular? Experts in the early 1990s predicted we'd spend half our workweek sunbathing at the beach with the time we saved using this new thing called electronic mail. But what's happened in practice is that all the methods of communicating via a screen — email, texting, and posting to social media — actually allow us the comfort of reacting to things on our own timetable. And that takes up more time.

Here's what I mean: on-screen communication allows time to compose, edit, and perfect, whereas face-to-face communication happens in real-time. When we're accustomed to taking our time to think of exactly what we want to say, we find it harder to do it face-to-face. And of course, when there's less real-time experience to draw on, we stay shaky and uncertain, which in turn makes us anxious.

Social media is judgment in public.

Social anxiety is a fear of being revealed and judged as somehow deficient. And social media pushes all those buttons perfectly. In the short term, we may feel a sense of relief when we can curate and control our digital lives. But long-term, all the impression management that goes into filtering can make us feel like any approval we get is more for our "brand" and less for us as a real human. The result? The gap increases between what we project and who we actually are, therefore increasing our anxiety about being revealed.

Compare and despair.

Finally, by now we all know that social media presents the highlights of our lives. We know the endless parade of pictures of tropical vacations and perfect families is a carefully organized show. But it's hard not to compare and end up feeling inadequate or defective, which, again, is the heart of social anxiety. Technology makes our lives more certain, convenient, and entertaining, but we lose out on chances to practice coping with uncertainty, inconvenience, and boredom.

The solution?

You don't have to toss your smartphone, but make room for people. Make time for face-to-face conversation. Before you tell your friend about your week by text message, suggest getting together in person. In short, in addition to using technology for all the good it provides, make sure you're still interacting with your fellow humans.

(Adapted from "How Technology Is Making Us Anxious: 5 Ways Technology Feeds Anxiety," *Psychology Today*, March 27th, 2018)

Question 1: Based on the passage, answer the following questions (A) to (D) with one complete sentence in English.

(A) What is one example of an activity that does not require an electronic device?

(B) How have smartphones changed the way people make plans for traveling?

(C) What becomes more difficult as a result of having plenty of time to compose, edit, and perfect emails and text messages?

(D) What often frightens people about using social media?

Question 2: For statements (E) to (I), write **T** if the statement matches the content of the passage. Write

F if the statement does not match the content of the passage. Write **N** if the information of the statement is not given in the passage.

(E) The author suggests that readers of the article probably think that less uncertainty would lead to less anxiety.

(F) When people-avoidance becomes our first choice, we lose confidence.

(G) People didn't use email before 1990.

(H) When people feel more like a "brand" than a human being, they may experience more anxiety.

(I) The author suggests that you should throw away your smart-phone.

Question 3: According to the passage, "pictures of tropical vacations and perfect families" on social media may cause people to feel jealous, resentful, or upset. Give an additional example of such a photo and explain why people have a negative feeling in 25 to 35 English words.

3 According to Japanese law, you cannot get a driver's license until you are 18 years old. In some countries, however, it is possible to get a driver's license when you are 16 years old. Do you think it would be a good idea or a bad idea for Japan to change the current law in order to allow 16-year-olds to drive? Write your answer in 80 to 120 words in English. Be sure to give three reasons to support your answer.