

The robots are coming

Level

Pre-intermediate and above (equivalent to CEF level A2-B1 and above)

Comment

We are likely to become increasingly dependent on robots, but their usage raises many controversial issues. If you are teaching in a high-tech society, much of this information may already be familiar.

How to use the lesson

- 1 Put up this definition of a robot on the board, without saying what it is: *a machine that can do work by itself, often work that humans do*. See if students can identify what it is. Find out from students if they have ever seen a robot. Put students in threes to think of at least 3 jobs that modern robots can do. Take feedback on ideas.
- 2 Tell students they are going to read a text about robots, which talks about what robots can be used for in today's world. Show the paragraph headings in Exercise 1, page 2. Clarify any unknown words, e.g. *warfare*. Emphasise to the students that they must read the text very quickly in order to do this exercise. Allocate 1-2 minutes, depending on your group, but certainly no longer than this. Take whole class feedback.
- 3 Make sure students know where to find the Glossary (page 3) for vocabulary which may be new in the text. For Exercise 2, students work alone to discover which of the types of robot are mentioned in the text. (You may want to do the first one in open class as an example.) Students complete Exercise 2 on their own. They can then compare answers in pairs before feedback.
- 4 Ask students at this point which information they find surprising or particularly interesting.
- 5 Put the first sentence starter for Exercise 3 on the board and elicit how to conclude it, accepting two or three different options. Remind students that they can change the words from the text if appropriate. Students complete the exercise. At lower levels (A2-B1) it is more important that students read and find the right answer, so do not worry too much about syntax and accuracy. With higher levels, giving a reasonably accurate sentence could be an additional secondary focus to raise the challenge. Once students have finished, take class feedback or alternatively put the answers up on the board for students to check themselves.
- 6 If possible, show students a picture of the Heathrow robot cars (see references below). Ask students to think in silence about why a robot car might be better than a normal car. Then refer them to the discussion points in Exercise 4. Give students time to think about their answers on their own, and to make notes. When they are ready, regroup them into new groups of three to discuss. Ask students to complete just the first four points (early finishers discuss the last one too). Monitor as they are talking and be ready to prompt with additional ideas. Hear some feedback from the individual groups, putting up relevant lexis on the board.
- 7 Round off the lesson by either showing them a video relating to the topic (see below) or simply by asking students to think about the kind of robot they would like to own.

- 8 For homework, particularly for higher level groups, this lesson lends itself nicely to a two-sided essay on robots – advantages and disadvantages.

Answers:

Exercise 1

- Par 1 = service vehicles
- Par 2 = robot cars at Heathrow airport
- Par 3 = the future and robot cars
- Par 4 = robots in warfare
- Par 5 = South Korea and robots
- Par 6 = robot care

Exercise 2

save people's lives	✓	stop people coming into the country	✓
wash people	✓	make people laugh	✓
look after a child	✓	take a person out for dinner	
go shopping for you*		play football	
do the household jobs, e.g. cleaning*		fight in wars	✓
operate on a person	✓	work in dangerous situations	✓
help to make cars	✓	sell products	
clean in difficult places	✓	drive people around	✓

* in par 5 it mentions the household robot, but it does not specify what tasks it will be able to do.

Exercise 3

Suggested answers (note that wording may vary):

- 1 The Heathrow robot taxis are 'green' because ... *they are not very fast / they travel on narrow roads / they use half the energy of buses.*
- 2 The public will be able to use the airport taxis ... *later this year (2010).*
- 3 The taxis travel from ... *to and from the terminal (from the car parks).*
- 4 Some say that in 40 years time people will drive themselves ... *only through personal choice, i.e. if they actually want to.*
- 5 In warfare, the main use of robots at the moment is to ... *search enemy areas and also in mine clearing.*
- 6 There are new military robots which can ... *actually fight / make (increasingly difficult) decisions independently.*
- 7 The South Korean government would like all Koreans to have ... *a robot in their homes by 2020.*
- 8 The South Koreans are making ... *a robot police force.*
- 9 The Japanese robot toys are liked by children because the robots can ... *entertain them (by singing, dancing, talking and telling jokes, for example) / possibly because they feed them too.*
- 10 Children can be looked after by the robots ... *for hours (perhaps even days, according to some experts!).*
- 11 Robot carers may be the answer for Japan because ... *they have an ageing population (and a shortage of carers, partly because of the low number of immigrant workers).*

Exercise 4

These are open questions, so there is no right answer. However, some considerations are below:

- 1 Robots do not get stressed, tired, hungry, ill or distracted. There is also no such thing as a learner driver, and robot cars could be designed to cope with weather conditions such as heavy snow, etc.
- 2 They might not be able to prioritise effectively, e.g. if they are in danger of hitting a person or a tree, how would they know which one to avoid? Problems of accidents and insurance are inevitable, e.g. who would be liable in a car accident? The programmer?
- 3 Like the robot drivers (see above), they are reliable and not distractible, however, they are not human so older people may suffer from the lack of interaction with a real person. It is possible that this sector of the community might be neglected even more, if robots were to become widely used. One other problem worth considering, besides the liability issue again, is the possibility of people also becoming addicted to their 'carers', rather like children to computer games.
- 4 See above, but potentially even worse because the first few years of a child's life are a key time for the healthy development of behavioural and social skills. All evidence points to the need for lots of real human contact, particularly in the early years.
- 5 Using robots in the fighting itself is controversial because they can change the face of war. At present the UAVs are operated by people who could be many miles away so robots can potentially be managed by someone with a 9-5 job on a different continent! Newer robots are becoming ever more independent. The main arguments are that a) robots cannot reliably distinguish an enemy from a friend, a civilian from a soldier and b) they cannot decide how to react proportionally because they are not intelligent and do not have a sense of fairness and reason. The issue of robots in direct combat raises huge ethical questions and is up for debate.

Related websites

The following websites might be useful, for either yourself or your students.

The robot cars at Heathrow

<http://news.bbc.co.uk/1/hi/technology/8377030.stm> (video)

<http://sciencestage.com/v/9716/heathrow-travellers-get-a-robot-chauffeur.html> (video)

Other

<http://www.parliament.uk/about/podcasts/robotics/noelsharkey.cfm>

<http://www.parliament.uk/about/podcasts/robotics/kevinwarwick.cfm>

<http://news.bbc.co.uk/1/hi/technology/6939549.stm>

http://news.bbc.co.uk/1/shared/spl/hi/picture_gallery/06/technology_robot_menagerie/html/1.stm (a good source of pictures of a wide range of robots)

http://www.usatoday.com/tech/news/robotics/2009-11-04-japan-robots_N.htm