

CSP E-Lesson 1, Fall 2008

Words of Wisdom: "When I became a surgeon I never thought I would operate on a person's heart with robotic arms and a tiny camera instead of a scalpel.

Martha Bonham, 36, Surgeon, Baltimore, MD



The Journalist

Ramon flips open his cell phone and snaps a picture of his classmates in front of the unfinished Crazy Horse memorial in the Black Hills of North Dakota.

As an aspiring journalist, Ramon texts the photos from this field trip back to school for tomorrow's edition of "The Westerner," his school newspaper. Later today, Ramon will borrow the trip leader's laptop to file a written article with the editor.

Ramon smiles as he remembers the little disposable cameras he used to take on trips when he was in elementary school. He would wait anxiously for a store to develop the film and be disappointed if the pictures didn't turn out well.

Ten years ago Ramon may have had to choose between a career as a journalist or a photographer. Now the power to be both lies in the palm of his hand. Putting away his cell phone, Ramon wonders how technology will change journalism in another ten years.

Identify three occupations that have been changed by our ability to take and transmit photographs instantly. Explain your answers.

1. _____
2. _____
3. _____

What Language Are You Speaking?

Marion shows her printed employee ID badge to the receptionist and enters her office to begin the day's work. First, she removes the plastic dust cover from her typewriter. Next, she grabs her stenographer's pad and knocks on her boss's door to see if he has letters to dictate.

All of the boss's letters have to be typed in triplicate. After taking down her boss's words in shorthand, Marion returns to her desk and rolls three sheets of white paper, with a piece of carbon paper sandwiched between each page, into her typewriter. She keeps a special typing eraser beside her typewriter because any error must be painstakingly erased from each copy. If the erasure looks messy, she'll have to retype all of the originals with their carbon copies. The completed letters need to be delivered as quickly as possible, so Marion marks the envelopes "Air Mail".

Before lunch, Marion must make travel arrangements for her boss, who wants a face-to-face meeting with his management team in another city. But first, she prepares an office announcement. She types the text on a two-piece, purple-inked "ditto" master, draws a picture of a bird by hand to make the announcement look cheerful, and then cranks the handle of a manual ditto machine to make a copy for each employee.

This story took place thirty years ago. Does it sound like someone is speaking a foreign language? Are there some words from the story that you've never heard?

Stenographer
Shorthand
Typewriter

Ditto machine
Air Mail
Carbon paper

What Language Are You Speaking? (Continued)

Marion is no longer a young, entry-level secretary, but she's still working. Thanks to new technology, she no longer uses a purple-inked ditto machine. She has learned many new technologies since starting her career, and she knows she will have to continue learning even newer ones as long as she works.

1. Three terms related to technology in today's offices are shown below. Add five more terms to the list. Then use your terms to rewrite the story, telling how Marion's morning would go in an office today.

- Video Conferencing
- Graphics design
- _____
- _____
- _____
- _____

Marion's Morning Today _____

What Language Are You Speaking? (Continued)

Technology companies work hard to create new time-saving devices for their users. Just as Marion has experienced huge technology changes during the years she's worked, you can expect similar changes during your career, no matter your occupation.

Two expected technological advances that would affect Marion's job in the future are shown below. What other career-changing technology might be possible?

Let your imagination go wild with "new office technology" that might be possible in the future. Or, if you have access to computers, go to www.Google.com and search for "Office Technology of the Future" on the Internet. Your school technology magazines can also help. On the next page, write a story describing Marion's Morning in an Office of the Future. Use the words from your list and add descriptions so a reader of your story can understand how the technology works.

DNA encoded identity chip. This chip is expected to contain a code that identifies your DNA, which can be taken from a swab of your mouth. The chip will be embedded in a card, similar to a credit card, for your wallet. You will use it to gain entry to buildings, unlock doors, pass through security lines, and other purposes.

- *Radio Frequency Identity tags (RFID's).* These tags would be placed on paper documents, such as contracts and tax documents. The pages could then be read from a special office tray connected to a computer.

- _____
- _____
- _____

What Language Are You Speaking? (Continued)

Marion's Morning in an Office of the Future _____

Change with the Times

As new technologies develop and the needs of society change, some jobs will disappear. Others will require employees to update their qualifications. And jobs we can't even imagine now will be created. To be successful you'll need to upgrade your knowledge and skills and change with the times.

The Humboldt Family

The Humboldt family reunion is a good occasion to meet people who can tell you how quickly jobs, society, and technology change. All of the Humboldt's have worked in the transportation industry in one way or another. Read about the Humboldt family reunion this year and discover how different family members changed with the times.

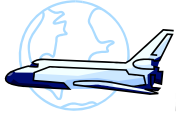


Hank, who was a blacksmith, is 92 years old. He once said, "Cars and trucks are contraptions that will never replace the horse." He also often told his wife, "People were never meant to fly! You won't catch me in a flying machine!"



Hank's son Harry, who is 64 years old, became an auto mechanic when cars did replace horses. But he has a close-minded streak like his father and told his friends, "I work on machines every day, and you can believe me that travel to the moon is science fiction! It'll never happen."

Change with the Times (Continued)



Harry's daughter Henrietta, who is 44 years old, disagreed with her dad about machines and believed space travel was possible. She became an aerospace technician. However, Henrietta inherited a little of her family's close-mindedness and doesn't believe scientists can solve the long-distance fuel problem that keeps humans from traveling any further into space than the moon.



Henrietta's son Hugo, a 21-year-old engineering student, brought an article about solar sails to the reunion to convince his mother that it will be possible to travel not only to the moon but also beyond our solar system.

The transportation industry has provided good careers for the Humboldt's because family members changed as needed to succeed on the job. Transportation is not the only industry where occupations and skill requirements change quickly. Choose a partner who shares an interest with you in a specific industry and create a family like the Humboldt's. Show how technological changes in that industry changed the work of four different generations. Suggested industries include medicine, information technology, education, construction and manufacturing.

1. Identify a family member for each of four generations who work in the same industry.

2. Tell how the industry changed during the years each person worked. For example, Hank's career of blacksmithing was changed when society accepted automobiles and trucks.

Family member 1 _____

Family member 2 _____

Family member 3 _____

Family member 4 _____

Future Careers Now

In the future, you may work in an occupation that doesn't exist now, one that will come about because of new technologies that are currently in trial. Genomics is one of those technologies that is expanding all the time. It allows scientists and technologists to map and study all of the hereditary information in human genes or DNA. Through genomics, drug therapies are being designed for patients' individual needs.

The list below shows other emerging technologies that will create new jobs in the future. Use the Internet or library to match each technology with its definition.

Emerging Technologies	Definitions
A. Nanotechnology	1. ____ Technology involving devices and machines that can imitate human intelligence
B. Robotics	2. ____ Technology that combines groups of super atoms into a new substance of artificial materials that aren't found in nature.
C. Genetic Engineering	3. ____ Technology that allows people to interact with a simulated environment
D. Artificial Intelligence	4. ____ Technology involving devices that work automatically or by remote control
E. Metamaterials	5. ____ Technology used to manufacture devices by arranging or rearranging microscopic atom.
F. Virtual Reality	6. ____ The manipulation of an organism's genes

Future Careers Now (Continued)

Some of the technologies listed in the chart on the previous page have no practical use yet. Others have already produced results.

Match the technology described in the previous chart with how it might be used in careers of the future.

1. _____ Neuroscientists believe they will be able to use this technology to target certain genes and turn them on and off to treat depression and other illnesses.
2. _____ Often compared to *Harry Potter's* invisibility cloak, bending light and making solid objects invisible may be possible through this advance.
3. _____ Da Vinci, already being used in hospitals, is a surgical system that allows doctors to operate by remote control on a person's heart with only a few small incisions.
4. _____ In 1997 a computer used this technology to beat the world chess champion in a game of chess.
5. _____ This technology is already being used to manufacture the sensors that operate airbags in cars.
6. _____ This technology is being used to help surgeons practice complex surgical tasks allowing them to see and feel the correct techniques.