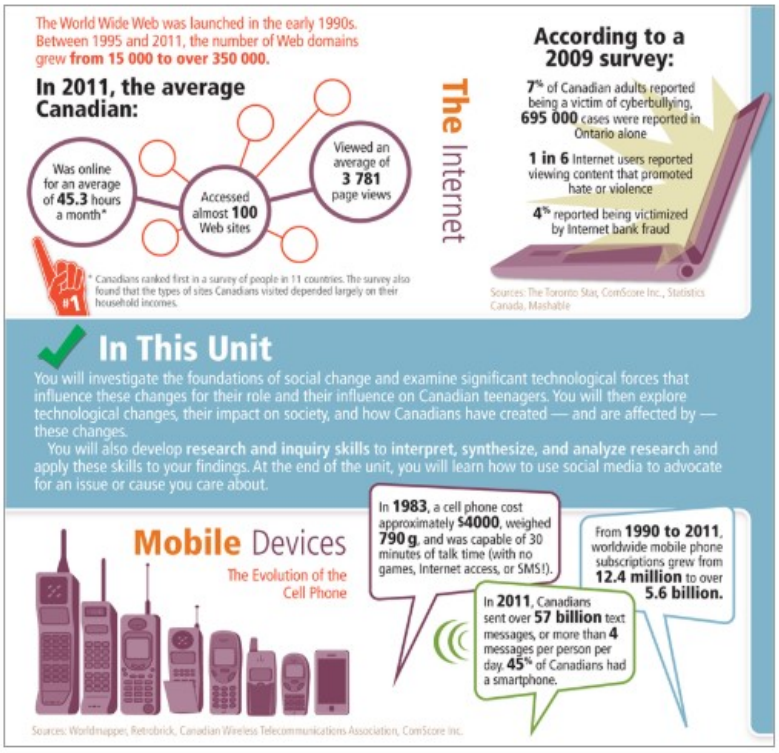
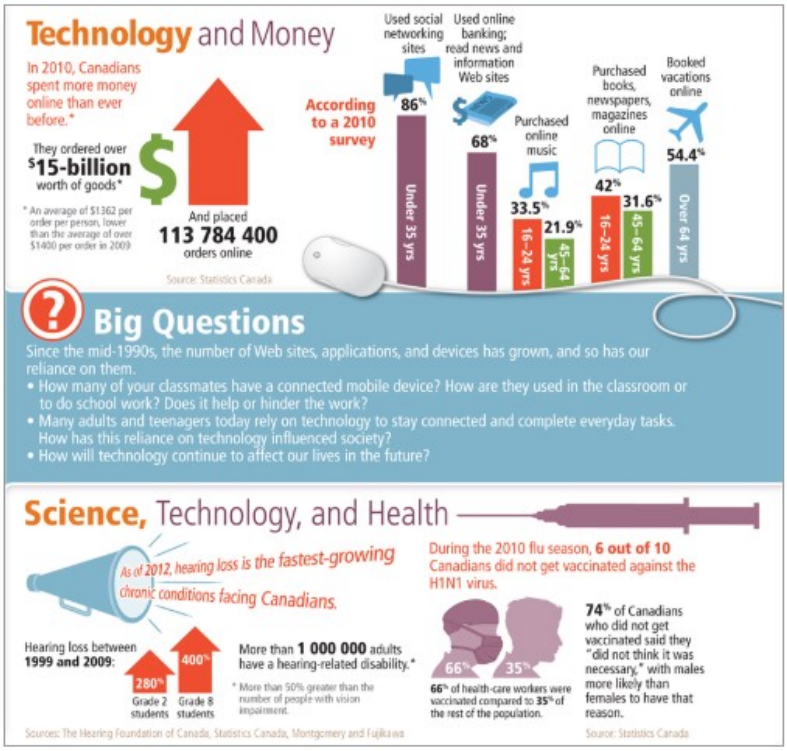
UNIT 4
SCIENCE AND TECHNOLOGY: CHALLENGE OF CHANGE





Research and Inquiry Skills

Interpreting, Synthesizing, and Analyzing Research

Once research data has been collected, the next step in social science research is to interpret what it means and determine whether the original hypothesis was supported. This is done by analyzing the data and synthesizing the findings to formulate a conclusion.

Interpreting Findings

When social science researchers use surveys to gather information, the data can be interpreted using a variety of methods. Because many survey questions use Likert-type scales, in which the respondent gives his or her degree of agreement, the researcher is able to gather detailed information. When examining data, researchers determine the value assigned to each category of a Likert-type scale. For example, a researcher would have to decide whether a response of "Strongly Disagree" will be given a value of 1 or 5 and use this value consistently across all data. Research results are then interpreted according to the values assigned. For example, if a 1 was used for "Strongly Disagree" and a low total was reached for a research item, the researcher would perceive the connection between a low score and not liking something. High scores would be associated with a positive answer or agreement. This would allow the researcher to draw conclusions using the data.

Combining Questions and Answers

Likert scales can be collapsed into more simplistic categories. For example, five responses can be collapsed into two different categories. Researchers have the flexibility to reorganize the data as long as the new categories are clearly defined and explained in the final research paper. Using a five-point Likert scale, responses can be grouped into two simplified responses of "Agree" or "Disagree." Respondents answering 1 or 2 would fall into the "Disagree" category; responses of 4 and 5 would be coded as "Agree." The Neutral category could be rationalized as being part of either group. The researcher must provide a rationale for the placement of a neutral answer, and this information must be clearly explained in the research paper. For more advanced data analysis, researchers can also combine answers from multiple questions to create a new research category to compare data.

Interpreting Interview Data

Interpreting interview data requires careful organization of the information. Transposed or taped interview data must be categorized by the type or strength of words the respondent used to answer the interviewer's questions.

Data can be reported in different ways. One way is to take a direct quote from the respondent's interview. The quote is used to explain a dimension of the research question and should be presented with research information to support or refute it. For example, an interviewee's response to "Does classroom technology enhance students' learning experience?" may be "Yeah, I like using a computer in class because the Internet has every answer on it." When writing this response in the research paper, the researcher could write:

> When asked about using technology in the classroom, the respondent "…liked using a computer in class because the Internet has every answer on it" (Interview 1). These findings are consistent with Carr's (2009) findings that students who used technology in the classroom reported…

Interview information can also be put into categories. The researcher can decide where the respondent would answer using a Likert scale. Interview information can be transformed into statistical information. The researcher must have a clear understanding of how the respondent would answer to make this analysis valid.

Interview data can also be categorized into discrete groupings like "Agree" or "Disagree" and a percentage reported in the findings. Readers like statistics because they provide quick information to make an assessment of the findings.

Analyzing Research

The aim of social science research is to determine whether there is a relationship between the factors being studied and what impact, if any, these factors have on each other. This relationship is known as a correlation, which provides a statistical measure of the relationship between variables. Correlations can be positive, such that both factors increase or decrease together, or negative, such that one increases while the other decreases, or vice versa.

An example of a positive correlation is the relationship between height and shoe size. People who are taller tend to have larger feet. The relationship between hours worked by teenagers and sleep tends to show a negative correlation, as the greater the time spent at a part-time job, the less sleep a teenager gets each night. However, it is important to note that correlation does not imply causation. Although there may be a relationship between two variables, one does not necessarily cause the other. Are people taller because they have large feet or does being tall cause your feet to grow more? Perhaps a third factor, such as a healthy diet, plays a role in influencing both height and shoe size. The correlation simply implies that there is a relationship between the two variables. Further research would need to be conducted to determine whether one factor causes the other.

Analyzing Data Using Visual Tools

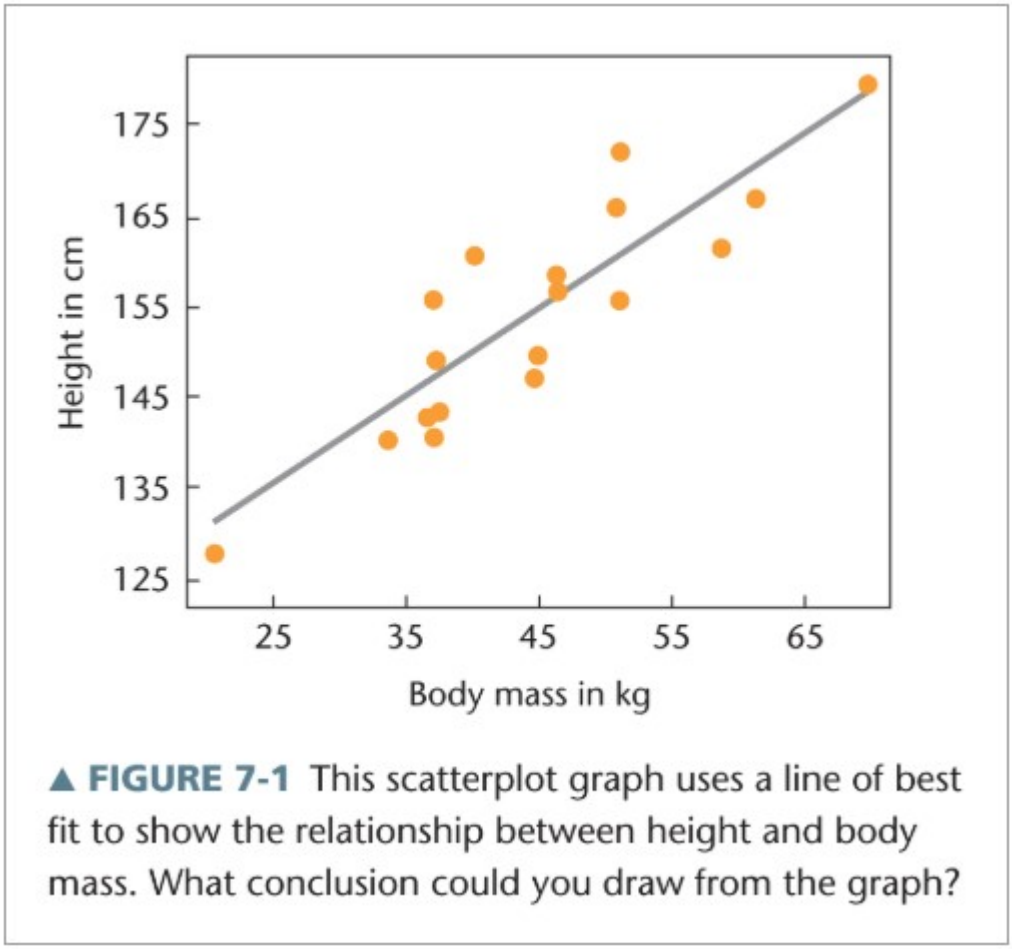
To analyze the collected data, a researcher can use graphs, charts, and other visual tools. Running statistical analysis on the data will provide a snapshot of the research. **Measures of central tendency** help to demonstrate how the data behaves. Plotting data on a graph allows a researcher to have a visual demonstration of how it is dispersed among all respondents and shows where most of the answers cluster (or do not cluster).

measure of central tendency: a measure that summarizes a data set using a single number; the three most common measures of central tendency are the mean, the median, and the mode

Sometimes results are expressed in a scatterplot format, with a line of best fit imposed on top of the data (see Figure 7-1). Graphs are an excellent way to visualize the patterns in data. Computer programs make examining and manipulating data easier because of their built-in formulas and graphing functions.

Synthesizing Data

After data have been analyzed, the researcher will begin the process of detailing their research in a report. The report will include an introduction where the researcher outlines the purpose of the study as well as the research question and hypothesis. The results of other related research may also be included. This will be followed by an outline of the study's methodology, including the format of the research and how data was collected (e.g., interview, survey, etc.). The results of the collected data are then presented, using statistical measures such as correlations and measures of central tendency to describe them. Finally, the discussion section outlines what conclusions can be drawn from the results and how these findings relate to past research.



▲ **FIGURE 7-1** This scatterplot graph uses a line of best fit to show the relationship between height and body mass. What conclusion could you draw from the graph?

FIGURE 7-1 This scatterplot graph uses a line of best fit to show the relationship between height and weight. What conclusion could you draw from the graph?

QUESTIONS

a. **Write a research focus question and survey to determine what will increase learning scores in a high school classroom. Your survey should include six questions, each using a five-point Likert scale.**

   a. **Write a concluding statement for each of your questions stating what your data has found.**

   b. **Using the same set of questions, collapse the Likert scale categories in each question. Write a concluding statement for each question reporting the new information.**

   c. **Compare the findings for each question before and after the collapsing of the categories. Are there any differences? Does the data show a stronger or weaker trend?**

Interactive: *Make It True: Statements About Science and Technology*

CHAPTER 7

The Impact of Science and Technology on Society

From penicillin to social networking, scientific and technological advances have had a huge impact on our lives. Because of their strong influence, social scientists are keen to study the effects of new technologies and medical breakthroughs on the lives of Canadians. They seek to understand not only the impact of technology on our immediate actions, but also the ramifications of these actions in the long term. As technology continues to advance at a record pace, understanding its role in society becomes increasingly important.

In this chapter, you will examine the ways in which technology has had an impact on the everyday lives of Canadians. You will examine the effects of advances in medicine on quality of life and how longer life expectancy influences society. You will also consider the influence of technology on our culture and communication and the influences of using texting short forms on language. You will also learn what social scientists do with their data to make it meaningful once it has been collected.

CHAPTER EXPECTATIONS

By the end of this chapter, you will:

- identify how society has adapted to cope with the social stressors of technological change on the individual
- evaluate the social impact of new technologies on social interactions
- analyze patterns of technological change
- analyze the technological advances that have led to cultural adaptations
- evaluate the impact of changing social mores on the well-being of Canadians
- evaluate, analyze, and synthesize information related to social change and formulate conclusions
- demonstrate effective data collection skills including the ability to gather and select relevant information from a variety of sources

KEY TERMS

avatar
biometric
emoticon
gait
identity theft
measure of central tendency
phishing
smart wallet
superbug

FIGURE 7-2 What do these items have in common? What are they the result of or a prelude to?

KEY THEORISTS

Emile Durkheim

Marvin Harris

George Herbert Mead

David Lyon

Stanley Milgram

George Ritzer

Peter Trudgill

Max Weber

LANDMARK CASE STUDY

George Ritzer: The McDonaldization of Society

Spotlight On … Using Technology to Commit Crime

Canada embraces the Internet, online technologies, and the conveniences they provide. From commerce to social and public services, Canadians are logging on and switching to an online format for many of their daily activities. The Canadian economy is closely tied to the Internet. In 2007, 87 percent of Canadian businesses reported using the Internet, and online sales were estimated at $62.7 billion (Government of Canada, 2011). The Canadian government has also shifted to offering many services online, including tax returns, employment insurance forms, and student loan applications. As of 2008, 74 percent of Canadian households had paid Internet services. In 2008, 59 percent of Canadians filed their taxes electronically, while, in 2009, 67 percent of Canadians were doing their banking online (Government of Canada, 2011). A significant amount of information and many personal services are now available online, and people who use these Web-based services are sending their information through cyberspace trusting that the host will protect their personal information. What is the value of this information?

Collecting and selling personal information is big business because both legitimate and illegal businesses have a desire to target their advertising at particular markets to increase their revenues. Through the use of technology, a large amount of information can be collected, organized, and sold to other organizations.

Phishing Scams

While some personal information is collected by companies and other organizations through legitimate sources (i.e., by entering your name, date of birth, etc., in an online form), other information is taken by force or through deceptive practices, such as through phishing emails. The theft process has become so refined that it uses psychology to encourage users to do the data inputting for the criminals. Having the user input his or her information reduces time and cost while keeping accuracy high for this entire process. **Phishing** scams use computers and the trusting nature of their users to collect information and steal the target user's identity. Under false pretences, criminals try to get users to disclose sensitive, personal information like their social insurance number, credit card numbers, and account passwords (and people frequently use the same password for different accounts).

phishing: an attempt to gain access to user names, passwords, and credit card information through a fraudulent, but official-looking, email

Here's how a phishing scam works:

1. A criminal sends thousands of emails. The emails appear to be messages from a well-known company (e.g., a bank or a social media site). They commonly contain false stories designed to lure the reader into calling a telephone number or following a link, which leads to a false Web site which appears to be identical to the real Web site.
2. The fraudulent Web site aims to extract sensitive personal information when the user enters his or her username and password thinking it is the well-known company's real Web site.
3. The fraudulent Web site can now take this information and input it into the real company's site to gain access to the user's information to commit further illegal acts. For example, they may collect credit card numbers and make purchases with them.

The reason phishing scams work is because some people will believe they are giving information to a trusted company when, in fact, the information is being supplied to a criminal. In particular, newer Internet users are more likely to succumb to this type of scam and should be aware of clicking any links provided within an email. If a company asks a user to click on a link to get to their Web site, that person can simply open a new browser window and input the company's URL (Web site address) to be sure that he or he or she connects to the real site.

Here is an example of an email sent to get the reader to click on a link and input his or her information on a fake online payment Web site. The Web site looks real and may even have hyperlinks to parts of the real site.

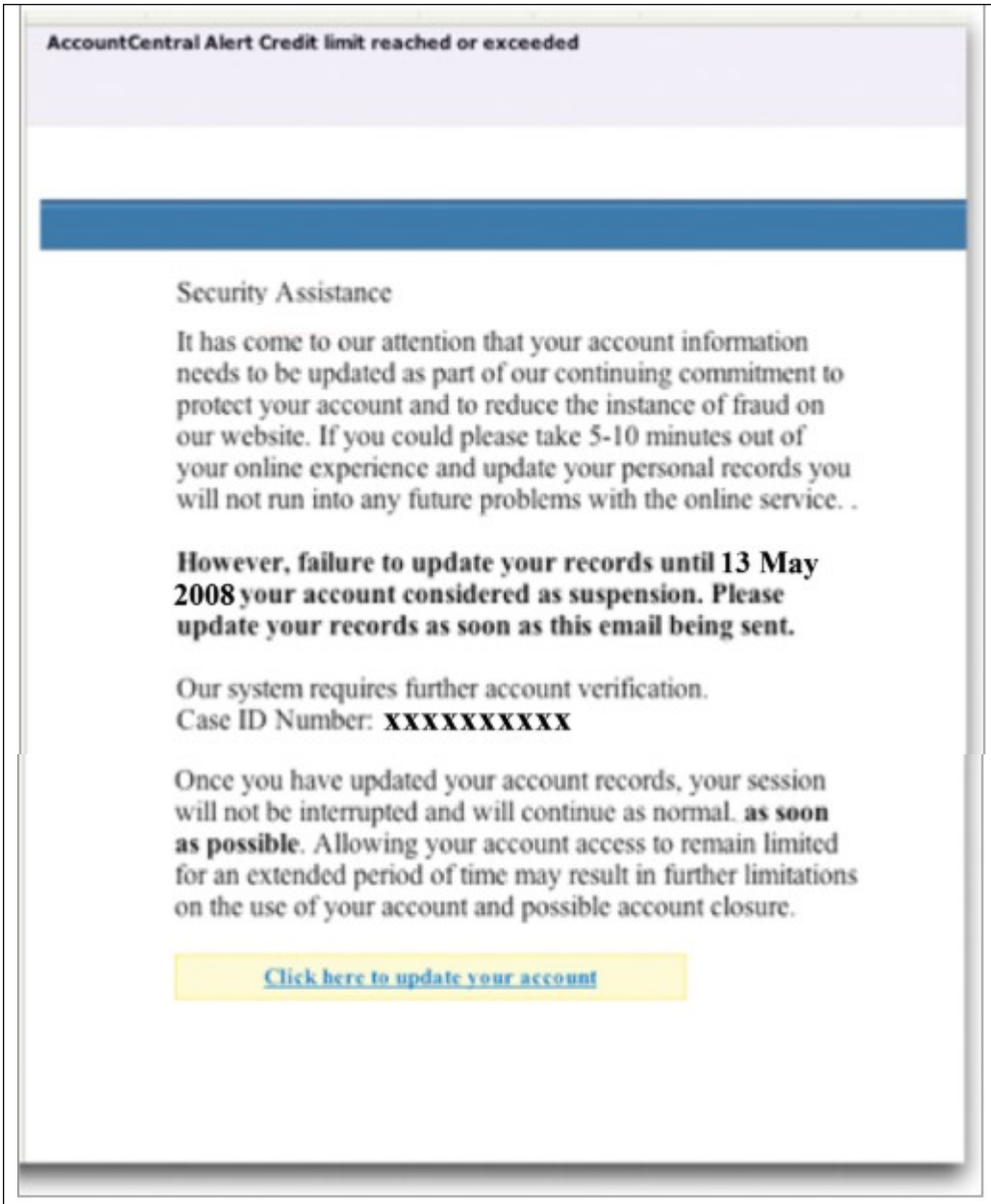


FIGURE 7-3 Many phishing emails look legitimate. Why do identity thieves use the names of well-known companies in their phishing emails?

However, this message contains many signs that it is a fraudulent email:

1. **Sender's address:** The "From" line may include an official-looking address that mimics a genuine one.
2. **Generic greetings:** Be wary of impersonal greetings like "Dear User," or your email address. A legitimate email will always greet you by your first and last name.
3. **Typos/poor grammar:** Emails sent by popular companies are almost always free of misspellings and obvious grammatical errors.
4. **False sense of urgency:** Many scam emails tell you that your account will be in jeopardy if something critical is not updated right away.
5. **Fake links:** Check where a link is going before you click by hovering over the link in an email, and comparing it to the URL in the browser. If it looks suspicious, don't click.
6. **Attachments:** A real email will never include an attachment. Because they can contain spyware or viruses, you should never open an attachment unless you are 100 percent sure that it's legitimate.

Other Types of Internet Crime

Other types of Internet-based scams include counterfeit check fraud, pyramid schemes, Ponzi schemes, property and mortgage investment schemes, confidence fraud (Nigerian advance fee fraud), Internet auction, passive residual income, work at home, and lottery scams. Losses for these and other crimes are quite significant and tracking their prevalence helps law enforcement agencies protect citizens. According to a McMaster University study, 1.7 million Canadians were victims of identity theft in 2008. Identity theft creates problems in society, as well as for the individual. The annual cost of identity theft in Canada was estimated at $1.9 billion (Government of Canada, 2011). This significant amount of money loss has prompted an amendment to the Criminal Code to better protect Canadians from identity theft.

SKILLS PRACTICE

Conduct the following research to learn more about Internet-based crimes.

1. Choose three types of Internet-based crimes and research how they work to defraud consumers. Find statistics that show how the prevalence of each one has changed over a period of time. Create a graph that shows the rise and fall of these Internet scams over the time period.
2. Summarize your findings in a paragraph, making direct reference to your graphs.
3. Using your summary and the data from your graph, write a letter to your local MP citing your findings and the changes that are needed to protect Canadian citizens.

HEALTH, MEDICINE, AND MODERN TECHNOLOGY

Using the rigours of the scientific research process, researchers have created technologies and medicines to enhance human life. Research gains are being made at an exponential rate. Each new finding affects any number of different areas of life. For example, improving battery technology may have an impact on the size of a hearing aid or the size and weight of a cellular phone. These inventions trickle down to the point where social interactions and social organization are changed. Smaller hearing aid batteries mean a smaller unit that can fit discreetly into a person's ear. With that one change, all of a sudden, hearing aids are no longer associated only with older people; they are more socially comfortable for other age groups. This is just one example of how modern technology has a trickle-down effect; in this case, in the field of medicine.

FIGURE 7-4 In the past, people with hearing difficulties relied on ear horns to improve their hearing.

The Impact of Science on Medical Research and Practice

Medical advances happen throughout the world. Pockets of specialized research are formed around some visionary individuals. In the past, research often occurred in isolation. Groups around the world were working on the same problems but not sharing their results. Sharing data and information was not realistic because of distance and time-lag problems. Each group was left to find their own answers, which was not very efficient. With the advancement of communication and information systems such as the Internet, research data can be shared in real time, worldwide. Findings and techniques can also be shared, reducing the amount of time required to solve a research question. Indeed, having many people working on the same problem speeds up the process.

In addition, using the Internet, researchers are now able to perform procedures from remote locations. For example, scientists in Australia performed real-time surgery at a cellular level in California by commanding a robot to do the work in the California operating room from their Australian lab (University of California, 2005). The lasers cut patterns producing surgical holes in a distinct pattern of less than one micron in diameter (1/1000th of a millimetre) in single cells. In 2010 the first commercial surgery robot prototype, Sofie: Surgeon's Operating Force-feedback Interface Eindhoven, was completed. Doctors can use Sofie to perform surgeries in places that are far away. It is expected that this technology will be ready to mass market in five years. Settlements that would not normally be serviced by a specialized doctor could gain access to these services, allowing people to live farther away from large city centres because they do not have to worry about finding a doctor. Robotic surgery is the new frontier of medicine.

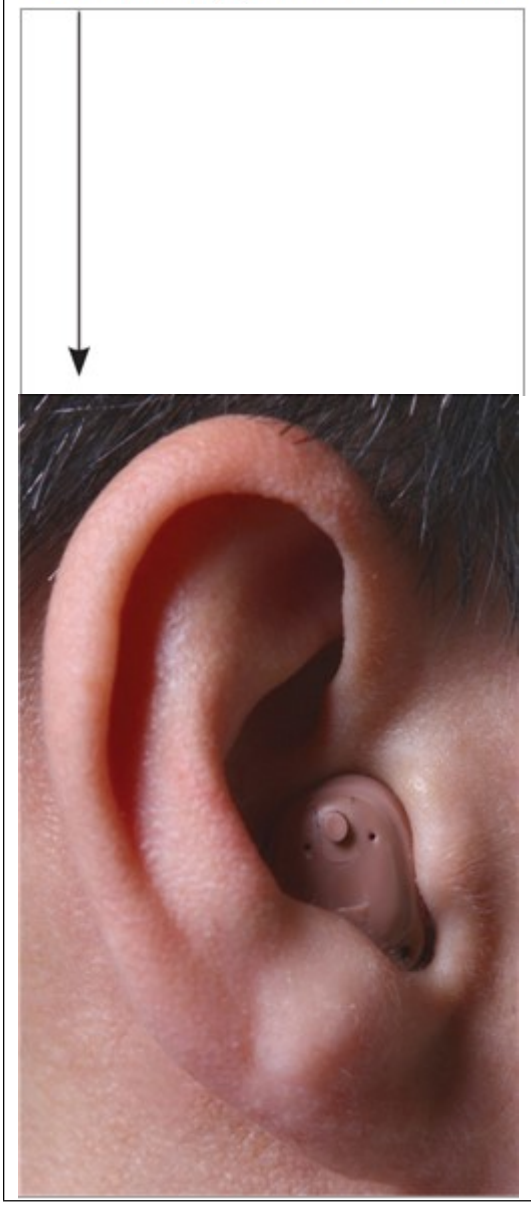


FIGURE 7-5 Advances in technology have reduced the size of assisted hearing devices so that they now fit directly into a person's ear. How has quality of life improved for people with hearing loss?

How might the use of robotic surgery impact doctor shortages for those living in remote or rural areas of Canada? List the potential advantages and disadvantages of this.

The Effect of Modern Medicine on Life Expectancy

One of the most significant discoveries in medical science was the invention of antibiotics by Sir Alexander Fleming, who discovered penicillin in 1928. Penicillin drastically reduced the number of deaths caused by infections, and had a huge impact on mortality rates. As people began to live longer, they developed their own set of needs that had to be addressed by society. Money, accessibility, places to live, and health care are areas of interest for this demographic group. This massive change in life expectancy affects everything from housing availability to the legal system. In 1931, life expectancy in Canada for men was 60 years and for women 62 years (Statistics Canada, 2007). Society is completely reorganized because there are now many more people whose needs must be considered. The number of seniors living beyond the age of 85 increased from 196 000 in 1981 to 492 000 in 2005 (Turcott & Schellenberger, 2006). By 2056, baby boomer numbers are expected to reach 2.5 million (Turcott & Schellenberger, 2006). Thus, the invention of a drug helped to usher in many social changes in Canada.

SKILLS FOCUS

Collect life expectancy data (from birth) for two different countries. Provide three different types of data sources such as a map, a table, and a news article. Synthesize the different data types into one chart (or other type of graphic) for each country to illustrate the life expectancy of people in that country.

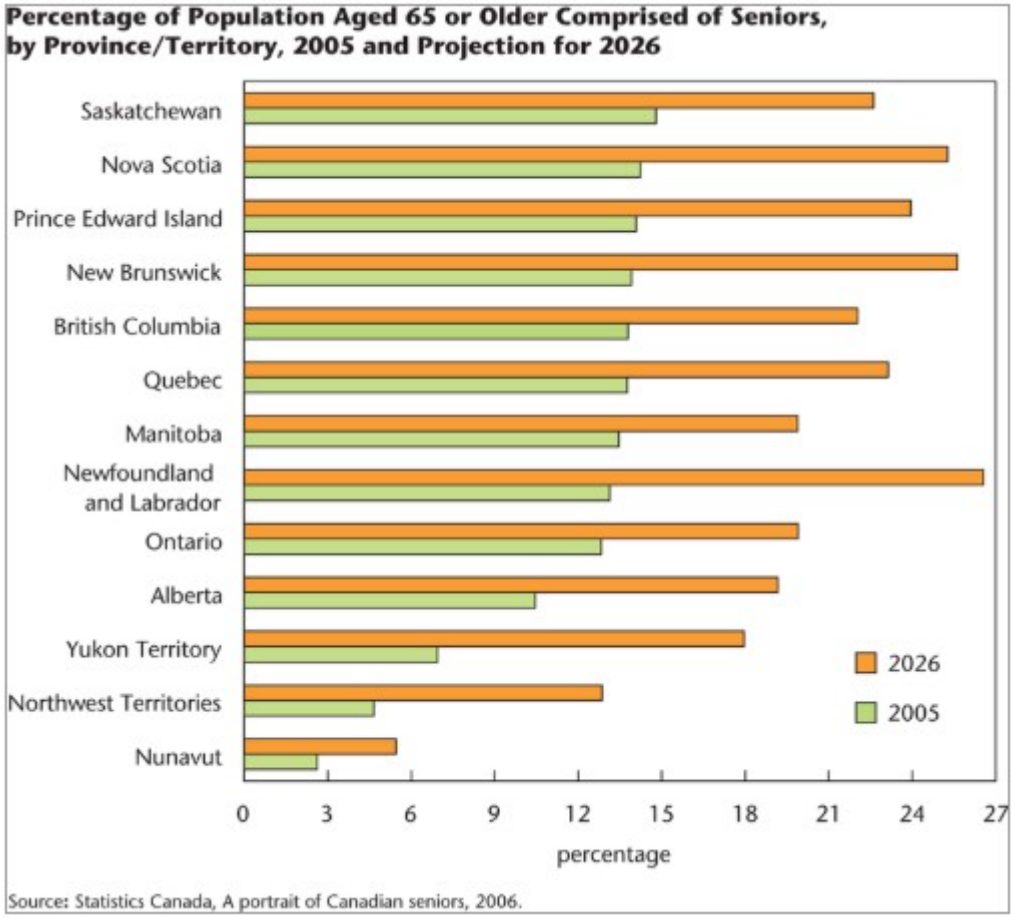


FIGURE 7-6 This graph shows how the age of Canada's social landscape is expected to change by 2026. Why might some provinces have a higher growth rate than others? Make predictions and/or projections about how where you live will look in 2026. How will things like public transportation and the workplace change?

The Influence of Infectious Diseases on the Lives of Canadians

Antibiotics played a large part in the establishment of the Canadian pharmaceutical industry. Pharmaceutical companies are major employers and researchers for new medicines that benefit society. Money earned by these companies is turned into future research projects to find treatments and cures for other ailments. Medicines these companies produce have a positive impact on the health of Canadians, but are there also negative side effects that will change how Canadians live and organize society?

The overuse of antibiotics has led to resistant strains of bacteria. **Superbugs** like methicillin resistant staphylococcus aureus (MRSA) have the medical community alarmed because once antibiotics become ineffective in treating a bacterial infection, little remains to fight the different strains. The irony is that the conscious efforts people have made to be clean and healthy are responsible for creating disease that we have limited defences against. Nowadays, it is common in households to use cleaning products that contain strong antibacterial agents to kill germs around the house. However, a growing body of research shows that antibacterial products can cause bacterial resistance, decreasing the effectiveness of antibiotics (Yang, 2009). Bacteria like MRSA have the ability to hold communities hostage because of the threat they pose. Socialization and interaction may be halted to reduce the risk of contamination and spreading of the virus. Visiting hours in hospitals in southwestern Ontario were reduced during the outbreak of severe acute respiratory syndrome (SARS) in 2003.

superbug: an antibiotic-resistant bacteria

IN FOCUS How SARS Influenced the Way We Deal with Infectious Diseases

In February 2003, a 78-year-old woman from Scarborough, Ontario, returned home from a ten-day trip to Hong Kong and brought back a nasty souvenir: severe acute respiratory syndrome. While no one knew what it was or the extent of its severity at first, it didn't take long for SARS to wreak havoc on the lives of Torontonians.

The outbreak virtually immobilized hospitals, which were unprepared to deal with an outbreak of this scale. Because it was a virus, not an infection, it was not treatable with antibiotics, making it that much more of a threat. According to the Center for Disease Control (CDC), there were 257 cases in the Greater Toronto Area and 44 deaths (Center for Disease Control, 2003).

Hospitals implemented emergency protocols that restricted movement and access and created new standards for clean hands and germ transmission. People with suspected cases of the virus were placed in isolation. Delivery of other health-care services was interrupted by the increased demand for screening/testing of those suspected of having the virus. Workloads for hospital staff increased with the heightened demand to quickly turn around test results and tend to those who appeared to have symptoms, whether real or imagined. Sanitization stations and sign-ins stopped people at the doors from entering and potentially spreading this illness to others in the hospital. Many hospital staff wore masks to protect themselves from catching the virus. Public sanitization stations that dispensed a clear, alcohol-based gel to clean hands became widely available. Catholic churches in southwestern Ontario were directed to forego the traditional sign of peace of shaking hands during mass as a precaution against spreading SARS. This single virus changed socialization and the level of cleanliness in public places.

FIGURE 7-7 How did SARS influence the behaviour of people inside hospitals?

H1N1

In 2009, the pandemic outbreak of influenza A virus, subtype H1N1, also known as "swine flu," created a medical state of emergency around the world. Roughly 10 percent of the Canadian population (3.5 million people) became infected with the virus, resulting in 428 confirmed deaths from this illness across the country. Thanks to the lessons learned from the SARS outbreak six years earlier, the medical profession was more prepared to deal with this pandemic.

After the SARS outbreak, a pandemic preparedness plan was developed and then put into action when the news of H1N1 was brought to the attention of the Canadian government. In anticipation of an outbreak, the Canadian government ordered 50 million doses of the H1N1 vaccine to ensure that every Canadian could receive a dose should they want one. Additional medical clinics were opened for the express purpose of administering the vaccine.

The media covered the story extensively, which some believe exaggerated the effects of catching this flu as well as the severity of its symptoms. While H1N1 was talked about day and night in traditional forms of media, social media also joined in on the discourse. There were social media pages dedicated to discussing its impact and the pros and cons of getting the H1N1 vaccine. You could even trace the spread of the virus around the world in real time using the Internet. Never before had a pandemic been followed so closely by ordinary people.

QUESTIONS

1. Since the SARS outbreak, hand-sanitizing stations can be found in various public places. How has this influenced the behaviour of Canadians? Why has there been a dramatic shift in cleanliness policy in public spaces?
2. The SARS outbreak cost Toronto over $350 million in tourism losses, plus $220 million in reduced airport activity and $380 million in lost retail sales. Why do you think people were so afraid to visit Toronto during the outbreak?
3. The H1N1 pandemic was worldwide and garnered a lot of attention from the media. What role did traditional and social media play in creating a sense of panic about it? In the future, do you believe that social media will positively or negatively influence how we deal with potential pandemics?

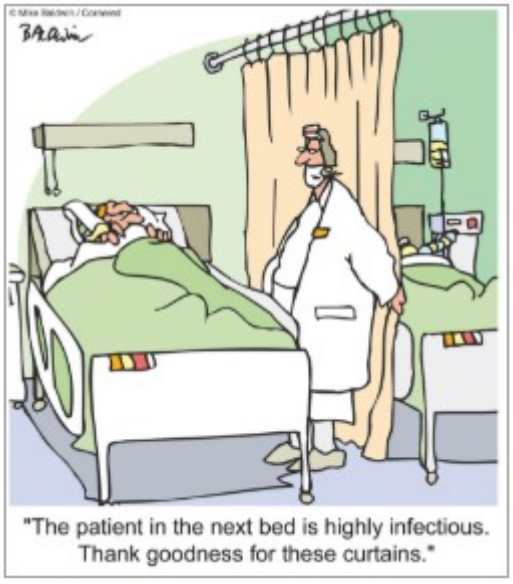


FIGURE 7-8 Without safety protocols, infectious diseases can spread quickly. What protocols have been created to minimize the transmission of infectious diseases?

What impact have antibiotics had on Canadians? How have antibiotics changed our socialization patterns in Canada? What role have the pharmaceutical companies played in the growth of Canadian society?

POINT/COUNTERPOINT

Should Immunizations Be Mandatory for Canadians?

Being proactive in the fight against disease seems to be a logical approach. Methods that deny diseases a viable host reduce the likelihood that a disease will spread rapidly. This can save lives, as well as time, money, and precious resources. The question arises, therefore, of whether immunizing an entire population makes a difference in the rate of infection or if it is ineffective because of the rate at which viruses are mutating. Good intentions could lead to larger problems in the future. Will the human body, in particular, the immune system, be weakened if it does not build up natural defences against these illnesses?

Yes	No
• Mass immunization provides the best coverage and reduces the chance that the disease will spread. • Large quantities of vaccinations can be made at a lower cost and stored for future use. • The strain on the health-care system to deal with such diseases is much greater than the upfront cost of the immunizations.	• Viruses can mutate, making the immunization less effective or even completely ineffective. • Not all religious beliefs support immunization. By forcing people to be immunized, you are taking away their fundamental religious rights. • Although empirical research does not support this, many people still believe that there is a causal relationship between autism and immunization and still follow the refuted research findings.
• Before the advent of immunizations, diseases like polio infected many people and led to death at a young age. • We have a responsibility to keep members of society safe. If there is a way to prevent death from a disease, we should ensure that everyone receives it.	• Mandatory immunization takes the decision away from parents about how to raise their children and gives the power to the state, which is not the basis of a democratic society. • No one can anticipate the effect of layering multiple vaccinations and the cumulative effect they may have on long-term health.

QUESTIONS

1. What right should government have to make decisions about our bodies and our health? At what point does the government overstep its mandate?
2. Where do you stand on the issue of immunization? Create a T-chart placing the pros on one side and the cons on the other side. Include a source for each of yours pros and cons to ensure that the information is from a professional source.

REFLECT AND RESPOND

1. What would the world look like today if penicillin hadn't been discovered? Discuss its effect on population and the pharmaceutical industry.
2. Explain what could happen if even more potent bacteria become immune to the cleaning regimens many people currently follow.
3. How can a crisis motivate change in society?

THE IMPACT OF TECHNOLOGY

The increasing significance placed on information means there is also a greater need to protect it. Advances in technology have allowed for the uniqueness of each person's body to be used as a means of identification. However, using technology in this way raises great concern in terms of protecting people's privacy.

Biometrics as Identification

Data safety and security are becoming increasingly important as more of our personal information is converted into electronic data. Canadians, like other global citizens, are exposed to digital identity theft as well as conventional theft. Losing your identity may seem like a small matter, but when it happens, retrieving it is difficult. **Identity theft** is a serious problem. A study in 2008 found that almost 1.7 million Canadians were victims of identity fraud. They spent more than $150 million of their own money and more than 20 million hours to resolve the fraud in the previous year (CanWest Media Service, 2008). More services are moving to an online format, which allows an identity thief to create a new "you." The new "you" can apply for credit cards or bank accounts, shop online, get passwords for bank accounts, view bills, and other activities. The difficult part is proving that your identity was stolen and trying to take back your digital identity. Canadians must work to keep their digital data secure.

identity theft: illegally obtaining another person's information, usually to commit illegal acts in their name

In the past, personal data security was ensured by using face-to-face contact to access specific information. This evolved into hand-signed signatures in combination with presenting a secondary piece of identification (ID) such as a driver's licence or health card to prove one's identity to someone who would manually check its accuracy and authenticity. False identification or altered identification could result in the denial of a service or lead to an arrest. Having a person check ID provides a level of security. However, to increase efficiency, the human element is removed in some cases to make way for technology. Machines allow for increased speed of transmission of information and allow more users to access the information, even from remote locations (not just at the point where the information is stored).

So much of what we do in our daily lives is accomplished through the Internet. Most people have an email address, and online banking and shopping have been growing in popularity. This increase in digital access requires increased security. Unique identification for each user needs to be established. User names and passwords are one form of unique identification as each one must be set to a unique set of letters, numbers, and/or characters. Unfortunately, many people find having too many passwords makes them difficult to remember; therefore, users tend to reuse the same user names and passwords, thereby creating a lower level of security should the password be stolen or cracked.

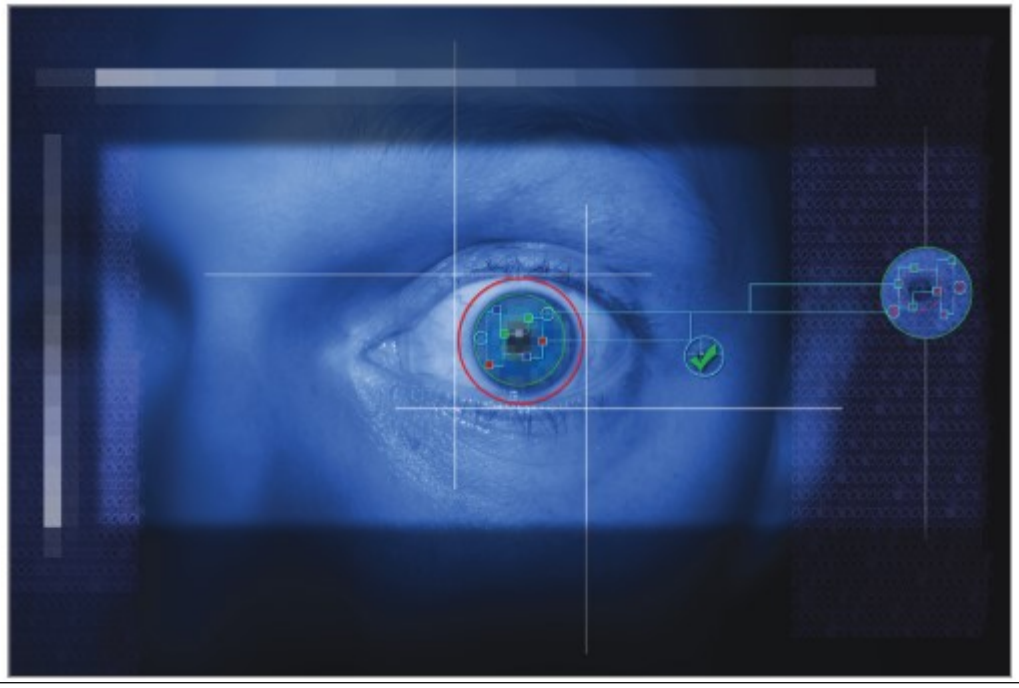


FIGURE 7-9 This iris scanner analyzes the patterns in the iris and translates them into a code to provide identification. Where might an iris scanner be used in the future?

A new method of identification that does not require memorization to access information is beginning to emerge. **Biometric** scanners use the unique blueprint of the human body to create novel identifications for each user. Information is now being stored or transferred to digital formats. This portable information can be quickly transferred in digital format so extra precautions need to be taken to ensure the protection of the data. Fingerprint scanners, iris pattern recognition, facial geometry measurement devices, DNA, and blood samples are all examples of how biometrics can be used for the purposes of identification. For example, airport security in some cities uses **gait** analysis and facial recognition to verify identity. In Canada, the Nexus pass card system uses biometrics to prove identity for low-risk travellers. Using iris identification linked to identity information kept on file, travellers can use self-serve kiosks to verify their identity, allowing them to bypass long border check lineups. Biometric devices are becoming adaptable to common devices like smartphones. Police departments are starting to implement iris and facial scanning devices that slide over the device, creating a smartphone-based scanner (Howard, 2011). Biometric devices can be used in combination to further increase security. Using a particular body part as identification is a good way to keep security measures strong. Protecting personal information on a laptop, sensitive information at work, or proving your identity at an airport are all places where increased security benefits from biometric security. Another benefit is that it is not necessary to remember passwords or pin numbers. This radical change to information access and protection increases efficiency and removes the requirement for a person to travel to find the information he or she is seeking. To meet the demands of data security, new methods to protect information need to evolve with technology.

biometric: information pertaining to a person's body such as the patterns on a person's finger or the patterns in a person's iris

Video: *Biometric Identification*

gait: a specific way of walking that is unique to each person

FIGURE 7-10 What existing devices have the ability to scan and, with the right software, analyze a fingerprint? What are the benefits and drawbacks of using such a device?

How can having access to all types of information be problematic?

Open *for* Debate

In the future, people may use data chips implanted in their arms to access all of their personal information, by swiping or scanning it; the idea being that a person will never misplace his or her information. What are the potential ethical and social concerns if this practice is popularized in the future?

The Smart Wallet: The Wave of the Future?

When the telephone was invented by Alexander Graham Bell in 1876, he could hardly have foreseen what its future held. While few people today still have a rotary phone, most people do have a cell phone or smartphone. The capabilities of today's smartphones have grown leaps and bounds just in the past few years alone. While most of these devices can send texts, surf the net, and even take photos and videos, this is just the beginning of what they will eventually be capable of doing.

As early as 2013, it is expected that smartphones will be able to act as wallets. That is, you will be able to swipe your phone to pay for purchases by tapping it against a chip reader. Similar technology already exists where consumers just wave their credit card in front of a machine and the purchase is approved without the need for a signature or PIN code. The use of your phone as a **smart wallet** takes this one step further by using your phone to communicate with a store's checkout system to complete a transaction. The technology for this is known as Near-Field Communication (NFC) and it comes in the form of a chip that is part of the new wave of smartphones expected to be released in 2013. To ensure that this form of payment is not used without the owner's consent, a PIN code is required to authorize the NFC. In addition, some credit card companies are capping NFC spending amounts to limit potential losses due to theft. By connecting credit cards and smartphones, might your wallet one day be obsolete?

smart wallet: the use of a smartphone to make purchases

In the Field

Dr. David Lyon: Surveillance Data Expert

What happens when personal data is collected? Are there any standards for keeping this data safe? Is there any screening process for the people handling this sensitive data? How is the data stored? Sorted? Analyzed? What happens to it after it has been processed? Unanswered, these questions illuminate a serious problem. What happens if this information is not properly protected? Data can be collected from a variety of sources, with or without a person knowing it is happening. Internet cookies track Internet use. Toll highway transponders broadcast where you enter and exit the highway. Stores track shopping purchases by asking for your email at the till or by using a rewards card that tracks your purchases through a points system.

David Lyon is a researcher at Queen's University who specializes in surveillance, and he is the director of the Surveillance Studies Centre. His research ranges from policy rights to surveillance activities themselves. Specifically, his research topics include the examination of collected information, how digital data is sorted, the rise of surveillance since the events of 9/11, surveillance data, and the ability to collect, process, and repackage personal data. His books have been translated into 13 languages.

Surveillance is not an issue unique to North America. Data collection happens on a global scale. With the increase in data speed and accessibility of information on the Internet, protecting personal security and digital rights has become increasingly critical. Lyon looks at the ethical and moral problems associated with digital information and the rights of the individual (or group) who possesses the information. As director of the Surveillance Studies Centre, he oversees the active research of its members in various areas of surveillance, including biometrics, social media, and airport and border controls. The Centre is both a multidisciplinary and international collaborative initiative. In addition to conducting research, its members hold conferences and workshops and have published numerous books and reports on this area of study, including several by Lyon himself.

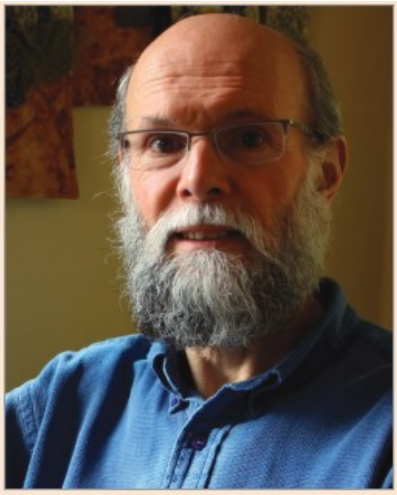


FIGURE 7-11 Researcher David Lyon studies surveillance- and information-related issues. Is surveillance an issue if you are not doing anything wrong?

Advancements in technology have allowed for an increase in the efficiency of data collection and the repackaging of digital information. Tools used to collect and catalogue human information include the unique identification obtained through biometric systems. The unique nature of the human body allows for identification and tracking of actions when one of these systems records a person's actions.

The changing social landscape must adapt to the demand for information. How the questions surrounding privacy rights of the individual and how these rights weigh against the rights of a society need to be explored further. As technological change occurs, a shift in laws and personal rights and freedoms is required. The constant change in technology calls for the continuous evolution of laws, rights, and freedoms. Research is necessary to identify where and how these changes will best be made. Researchers like Dr. Lyon are helping to navigate these changes.

QUESTIONS

1. Explain why ordinary citizens should be concerned about surveillance practices.
2. Information posted to the Internet is stored but is it ever deleted? What are the potential consequences of having information available that may never be deleted?

Video:*Dr. David Lyon: Surveillance as Social Sorting*

The Role of Social Media in Communication

Once upon a time, you had to write a letter, put it in an envelope, stamp it, and bring it to the post office. If it was going to a local friend, it would arrive in a few days. Anything further could take a week or more to arrive at its destination. Today, the same thoughts you would have put in that letter can be easily typed into a computer keyboard or smartphone keypad and will arrive at your friend's inbox within seconds…even if he or she lives in Australia!

This change in communication began with email and has since evolved to include social media. Social networks such as Facebook have changed the face of communication. Within a few minutes, you can create a profile that shows, among other information, your photo, the names of the bands you like, and whether you're liberal or conservative in your views. The more about yourself you reveal on social networks, the greater the connections you can make. Family, friends, and strangers can search for you by your name and send you a request to be their "friend."

FIGURE 7-12 Social networks allow users to connect in many ways. How have they changed the way people interact with one another on a daily basis?

For many people on social networks, the number of friends they have is a badge of honour. Having more online friends than your peers makes you appear more popular and socially desirable. But how close can you really be to 500 people? Some people add new people to their friends list after having met them just once, just for the sole purpose of augmenting their totals.

Open *for* Debate

Many companies today are using online media to learn about job applicants. Should they have the right to look at your social network profile to determine if you would be a suitable candidate? Is this an invasion of privacy or just another tool available to make a good hiring decision?

Social network friends can write on your wall—the public area in your profile that everyone can see—or send you a private message. This communication sometimes takes the place of email, especially for casual conversation. For many, it's a great way to share photos with friends and family, especially when those people don't live close by. However, it's important to consider what types of photos are being posted on social networks. Posting lots of photos of yourself partying can come back to haunt you if a potential employer should happen to stumble upon them.

How has technology changed the way people communicate?

The Transmission of Social Norms

Change does not need to occur or start in the physical world. Virtual landscapes provide opportunities for people to meet and exchange ideas, create friendships, and network across the world. Technology gives people the opportunity to take on a new identity and become what they want to be. As you've read, Emile Durkheim believed that the increased transmission of social norms has the ability to increase social cohesion, thereby reducing anomie. Virtual communities serve the same function as live groups in terms of socialization and the reinforcement of norms and values. Communication speeds have increased over the years and digital information transfer can reach all over the world. Remote areas are connected to large urban centres and the distance between these places is now only a click away.

More *to* Know

You learned about Durkheim in Unit 1 and Unit 2.

People flock to the Internet to get away from their daily lives and to network with other people. Sites like Second Life allow the user to assume a new identity in the form of an **avatar**. This avatar can look and act any way the user wants. Choosing living arrangements, exploring new jobs, and making the most of their social life are all part of the avatar experience. People are able to do things in the virtual world that they could never do in real life. Only their imagination limits this experience. The physical and virtual distance between users allows for a sense of safety and security when interacting on sites like this. Entire lives and storylines can be created in a virtual world. This begs the question: if everything is happening in the virtual world, then what happens in real life?

avatar: a visual representation of an online user's alter ego

What will be the impact of time spent in virtual worlds on Canadian teenagers' social skills when interacting face-to-face in the real world? Behaviour is learned through interaction and watching for cues from the other person. In the virtual world, people lose the benefit of behavioural cues to help them understand how the recipient thinks and feels about the interaction. More accurate language or increased description must be incorporated into conversations to provide meaningful feedback. This is where emoticons and short forms such as LOL or;) come into play. They help provide the tone of a person communicating via the information superhighway. Whenever an adaptation takes place, new behaviours must be practised and become integrated into the new interaction to make meaningful communication. Once users adapt, the virtual world and communication continue along their merry way…until the next adaptation is required.

FIGURE 7-13 Users select customized avatars to fit the life they feel. Would your avatar represent who you are or who you would like to be?

The Cultural Materialist Viewpoint

Cultural materialism examines material conditions like food, geography, climate, and communication to explain human culture. According to Marvin Harris, through cultural materialism the causes of differences and similarities among societies and cultures can be researched because human social life is simply a response to practical problems. Canadian society has evolved with communication technology. Online communication etiquette, the expectation for immediate information, and the idea that finding an answer is only a "Google" away have become part of Canadian society. Socialization and work use the same World Wide Web and information posted has the ability to reach many people with the speed of a click. Information is immediate and transmitted to many Canadians simultaneously. Psychologically speaking, geography becomes smaller when Canadians can communicate seeing the face of the other person on a screen. Customs, cultures, and even recipes can be shared to provide a richer cultural understanding of other people living in Canada and around the world. Technology's ability to transmit and make accessible information at any time from many access points influences culture through the information we access.

> More *to* Know
>
> You were introduced to cultural materialism in the Prologue.

The Small World Experiment and Beyond

In 1967, psychologist Stanley Milgram designed an experiment to measure the level of connection between people's social networks. This became known as the "small world experiment" as it tried to determine the likelihood that two random people would know each other. Each of the study's 296 participants received a postcard whose final recipient was a man in Boston. They were instructed to send the postcard to someone they knew who they believed would know this man. This chain was to continue until the postcard arrived at its destination. Although not all postcards arrived, of those that did, the average number of intermediate persons between the initial participant and the final destination was found to be five. This led to the phrase "six degrees of separation," indicating that any two people in the world are separated by no more than five acquaintances, in addition to themselves, which makes the sixth degree.

However, because the Internet has the ability to connect people worldwide in a much more timely and efficient manner, researchers have sought to determine if this number has shrunk. Milgram's experiment was repeated by researchers in Milan in 2001, only this time email was used to circulate the message to a specific destination. The experiment yielded the same results as Milgram's original experiment. Facebook, in conjunction with researchers at the University of Milan, undertook its own research in 2011, using its 721 million users as subjects. At the time of the research, there were 69 billion "friendships" on Facebook. Over the course of one month, researchers used algorithms to analyze the numerous sample paths between Facebook users. The research suggests that 92 percent of its user pairs are connected by five degrees, one fewer degree than just by mail or email. The conclusion? A friend of your friend probably knows a friend of their friend.

REFLECT AND RESPOND

1. What information are you frequently asked to provide while surfing the Internet? What are the dangers of providing such information?
2. What defines social media "friend"? If Facebook's research had been limited to those people with whom regular communication took place, how do you think the results would have differed?
3. Hypothesize about how people's social skills may be affected by a reduction in the amount of face-to-face communication they experience.
4. What services are now provided online that would have been provided through face-to-face interaction in the past?

HOW-TO:

Track the Transmission of Information

As connections between people grow, so does the ability to disseminate information. The Internet possesses the means to spread information faster than any previous method of exchanging messages. With the click of a button, messages can be delivered to as many recipients as your bandwidth can handle.

In this experiment you will be testing to see how fast information can travel using electronic means.

Steps

1. To participate in this experiment, you must have friends (or followers) on your social networking site who attend your school. If you don't have any, have another classmate conduct this portion of the experiment. Post a single message to your social networking site, first thing in the morning. The content of the message will be "Come to Room#____ at the start of lunch tomorrow to get a free Timbit. Please pass this message on to other students in the school." Note that the Timbit can be substituted for any item; i.e., candy or any small reward. This experiment will work best if it runs during the week and does not span a weekend.
2. Create a survey to track who receives the message, how it is transmitted, and from whom it is received. You will need this information to complete the following steps.
3. The next day, go to the designated room just before the specified time and set up a table to collect the information. Remember to bring the reward (e.g., Timbits) and give one to each student who fills out your survey form. To qualify for the reward, students must have read the information from a digital source. Students who hear the information by other means do not qualify for the treat, but should still fill out the survey indicating how they learned of the message.
4. Take the data you have collected and synthesize the information to create a chart showing how the message travelled from student to student. Use solid lines to show proven links and dashed lines to show unproven links. This can be a complex task and may require each of the entries to be put on sticky notes to allow the names to be moved to different spots. Alternatively, you can use Smart Ideas or other similar software to create an electronic version of this assignment. If there are gaps or small clusters of students that you cannot link together, put them in a logical place and draw in the link that you believe exists.

Interpreting Your Results

Your survey results will indicate from whom each person heard the message and the way in which the message was received. Using this you can begin to plot a diagram like the one shown above. This will show you how the message to come to the room travelled from your online friends/followers to others in the school. Consider how many of the people who showed up were on your friends list. How many were friends of friends of friends?

If you find that most of the people who showed up were not on your friends list, you might conclude that the message was successful in reaching a large population of people.

Taking It One Step Further

Sometimes YouTube videos or pictures will "go viral"; that is, they will have millions of people view them. Consider what you would have to do to make your message go viral. Ask yourself the following questions:

- How many people would have to share this with their friends to reach one million people?
- What type of message would get people's attention?
- Are there any actions you could take to help it go viral?
- Are there any negatives for the people involved if this goes viral?

CHANGE IN ACTION **CyberMentors**

On February 2, 2012, a very unique type of demonstration was held at the United Nations headquarters in New York City. There wasn't a big crowd of people chanting or holding up signs. There was nobody storming the doors of the building either. In fact, there weren't any live humans there at all! This was a virtual march put on by Beatbullying, an anti-bullying charity, in an effort to raise awareness about cyberbullying. And the protestors were a bunch of avatars created by users from around the world.

Beatbullying is a not-for-profit Web site that aims to stop bullying across the United Kingdom. Its CyberMentors program is a Web site that connects young people from around the world to support one another online regarding various issues, including cyberbullying. The idea is that when someone has an issue to work through, they may feel more comfortable sharing it online because it gives them a level of anonymity they wouldn't have otherwise. While school guidance counsellors and other adults can also offer support, sometimes it's easier for young people to talk to someone their own age, who can understand what they're going through. The mentors receive training on how to deal with various issues, such as depression, abuse, and cutting. There are also trained counsellors that work one-on-one with those seeking help at a regularly scheduled interval. Counselling can be done using instant messaging, private messages, or email and is offered for a maximum of 24 weeks. The program claims that it has reduced instances of bullying in schools by 70 percent.

Why a Cyber March?

The Big March 2012 ran from January 31, 2012, to February 2, 2012, and as many as 2 million people were expected to participate globally. Individuals and organizations could sign up through the Beatbullying Web site to join the protest. Joining the protest meant creating an avatar as well as an anti-bullying banner. Traditional protests feature people walking along streets; this cyber march featured avatars doing the same. When users visited any of the nearly 100 Web sites participating in the march, they saw the avatars walking across the page from left to right, thereby bringing awareness of the issue to millions of people. Through this global digital movement, people could unite in their demand to see the Beatbullying declaration enacted: "I have the right to be safe."

FIGURE 7-14 How can an avatar be a protestor?

The culmination of the march involved handing over a signed petition to the United Nations asking that it modify the UN Convention on the Rights of the Child to include the term *bullying*, therein stating that every child has the right to be safe from bullying. If their plan works, countries that have ratified the Convention will be required to take action against bullying by implementing legislation that will protect children. In doing so, they will be sending the message that bullying is fundamentally unacceptable. A similar march in 2010 had nearly one million people sign up and led to an in-person meeting with the U.K.'s deputy prime minister during which Beatbullying representatives delivered its recommendations, resulting in the CyberMentors program receiving government funding.

QUESTIONS

1. Why did Beatbullying choose to use avatars as protestors rather than having real people demonstrate at the UN headquarters?
2. Do you think an online march can be as successful as other types of protest, such as the Occupy Movement? Explain.

COMMUNICATION

Communication has evolved with technology. The limitations of technology modify the amount and type of information that can be sent and this changes how we communicate. With fewer characters to use, other ways of expressing meaning had to be developed.

The Evolution of Language

To effect change, people need to speak a common language that is understood by all of the parties involved. When language changes and evolves, there is the potential to create disconnectedness between the parties involved and miscommunication may ensue. Frustration and a lack of progress may be the net result of failed communication and can make producing change even more of a challenge.

Language has evolved along with Internet transmission technologies. The average 16-year-old knows from 10 000 to 12 000 words (Quinion, 2011). The contents of this vocabulary have changed over the years to suit the needs of society. With the advent of online communication, a new language has evolved to communicate online and to describe this communication. Phrases like *Ping* and *BBM* accompany the new communication technologies and become part of a user's vocabulary. Acronyms are more commonly used in digital dialogue because they save time and are easier to type on the reduced-size keyboards used on cell phones and smartphones. In particular, when using social media like Twitter, a person is limited to 140 characters, making the use of short forms almost a necessity to get one's message across. Terms like *BRB* (be right back) and *LOL* (laugh out loud) have replaced their longer, full-length versions. Word short forms are also becoming more popularized. Words like *OK* simply become *K*. It becomes even more confusing when slang phrases are made into short forms, requiring the reader to have knowledge of the original term to understand the shortened form. For example, a text using just the word *sup*, which is short for "what's up," is a way of asking what is going on. Many different layers of knowledge are needed to decode the new communication.

Sociolinguistic researchers like Peter Trudgill (1943–) are researching new language variations and the social prestige associated with the language. There is a more positive prestige associated with terms used by an upper class as compared to the lower prestige associated with lower-class language, such as short forms. Languages rich in prestige have a rich literary heritage and a high degree of modernization. There is also a strong correlation between the prestige of a group of people and the prestige accorded to the language they speak. Where do the speakers of the new Internet language fit in?

Spell Check: Blessing or Curse?

Another built-in feature that inhibits clear electronic communication is the spell checker. Spell checkers that are built into word processing programs and smartphone applications, as well as auto-detect software reduce the need to know how to spell or even complete words. Auto-detect programs that are integrated into most text-based communication programs provide possible words before you even finish typing them. There is even a spell checker that will check the text for grammar and spelling before you send a message. Both features have the option of being turned off, and users who want to be more efficient with their messages will deactivate them. Unfortunately, short forms of words and abbreviations are common when communicating using a cell phone, thereby negating the use of proper spelling and grammar. If people don't practise spelling, their skill is reduced. This, coupled with the diminished accuracy when typing using a shrunken keyboard, creates messages that must be decoded further to understand the intended text. Spelling accuracy is also affected by the speed at which the recipient expects a response. There is an inversely proportional relationship between speed and accuracy: accuracy decreases when speed increases. If you're chatting with someone in real time, the person may expect a response fairly quickly or he or she may lose interest in the conversation. To further increase the speed of sending a message, most people will not bother to review or proofread the text.

What are the potential repercussions for young people today who exclusively use short forms and abbreviations in their daily lives? Explain.

VOICES

Only when we have significant symbols can we truly have communication.

–George Herbert Mead

Emoticons

George Herbert Mead's understanding of the self shows the importance of socialization and the priority it holds in people's lives. Through interaction between a person and his or her surroundings, the mind is able to shape its understanding of the environment. The mind plays an active role in the interpretation and processing of social information. Experience, values, and even the interpretation of gestures come together to create an understanding of social interaction. This interaction can be challenging if one of the elements that helps the mind understand interaction is missing. Today's technology can create a barrier to communication and interpretation of the self by removing or minimizing the showing of gestures. **Emoticons** help bridge this gap to show candid snapshots of emotion. With the addition of a smiley face, meaning is better understood and fewer feelings hurt over the content of an otherwise ambiguous message. For example, "You're such a snob" could be taken as a negative statement by the recipient of that message; however, "You're such a snob:p" indicates that the sender was making the comment in jest and feelings are less likely to be hurt.

emoticon: a visual representation of a facial expression using punctuation marks and letters; used to clarify tone in Internet-based communication

All of these factors together create a new communication language, with the majority of the teen population being fluent in the made-up language and to a degree dysfluent in their own oral and literate language. Being universally understood will be a challenge as older generations attempt to catch up with the evolving short forms and learn to communicate using the same terms as those used by younger generations. This disconnection in digital communications makes effecting change more challenging.

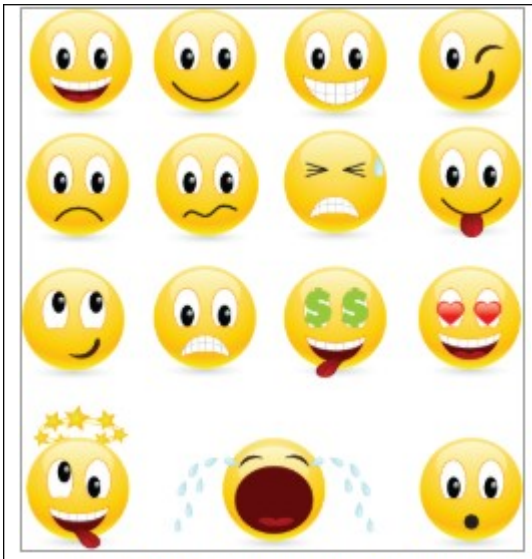


FIGURE 7-15 Using an emoticon is an effective way to convey emotion without using many characters. What are the possible negative aspects of using an emoticon in communication?

REFLECT AND RESPOND

1. In what ways has online communication changed how much and how often we speak to friends and family?
2. What function do emoticons serve for communication? Why are they necessary?
3. How has the Internet influenced the speed at which technology advances?

IN FOCUS Texting: Making Meaning in a Few Characters

Just as the popularity of texting has exploded, so has the expectation for information at lightning speed. This has led to the creation of an abbreviated language to accommodate the demand for quick responses that fit into the parameters of texts.

On traditional cell phones, three or more letters are associated with each key (for example, the number 2 key is also the key for A, B, and C). To select the letter B, you might press the number 2 twice and then pause for the cursor to move to the next character space so you could continue writing the word. Because this could be very time-consuming, people began to create short forms of words. Newer cell phones and smartphones are incorporating QWERTY keyboards, which mimic a traditional computer keyboard, to make access to letters simpler and to accommodate the large amount of text data generated on these devices. Even with the introduction of the QWERTY keyboard, however, the short forms and abbreviations have remained.

Some of these short forms are based on cultural slang or make reference to popular culture, which can be confusing and add to the difficulty in understanding and learning this new language. English is already a challenging language to learn. The introduction of alternative word forms that require two or three pieces of additional knowledge to understand them makes the language extremely difficult to use properly. Some of the abbreviations are acronyms for sayings, like IMO for "In my opinion." Other letter combinations refer to actions, like BL: belly laugh. An example of the new language's roots in popular culture is the use of "404." This makes reference to an Internet error message that appears when a Web site page is not found—Error 404: Page not found. This error means more information is needed to display the Web page because of a lack of information. The texting term means more information is needed. There are number combinations that reference the letters associated with the keys on a phone pad to spell out an acronym for an action. Finally, there are even sayings that use short texting forms to create pictures that represent what something might look like. These pictures may not have any syntactical link to the English language other than their use of letters and symbols from English. An example of this is: ⁎—which means "I should not have said that." This evolving language is complex and convoluted but still widely used in rapid, text-based conversation.

FIGURE 7-16 How has using short forms changed communication in our society?

Here is a sample of texting language short forms and their meanings:

:0& Tongue tied

:-9 Yum!

#- Up all night

~,~ Napping

88 Hugs and kisses

9 Parent is watching

s Meaning "smile"

w Meaning "wink"

143 I love you

1432 I love you, too

1OX Thanks

404 Information

A3 Anytime, anywhere, anyplace

AA As above

AA Ask about

AAF As a matter of fact

BITMT But in the meantime

BL Belly laugh

BLNT Better luck next time

BM Bite me

BME Based on my experience

BM&Y Between me and you

BOB Back off *buddy*

QUESTIONS

1. Research the different types of word and phrase short forms that texting, BBMing, and tweeting have created. Write a conversation between two people using these short forms, with seven to ten exchanges between the participants. Present this conversation to an adult to see if he or she can decipher what it means.
2. Explain what it might be like for an English language learner to try to make sense of the conversation you wrote in #1.

Landmark Case Study

George Ritzer: The McDonaldization of Society

What does ordering a cheeseburger have in common with texting? More than you think! The fast-food model of serving customers is actually quite similar to texting. At fast-food restaurants, people often place a complete order with the phrase "combo #____". This is a quick and efficient way for the order-taker to punch in what the customer wants and send the information to those preparing the food. In much the same way, texting BRB is a fast way to let your friend know that you'll be back shortly. Indeed, the fast-food model of service has come to permeate many aspects of society. Sociologist George Ritzer (1940–) studied the effect of this rationalization and its influence on society and termed it "the McDonaldization of society."

FIGURE 7-17 Think back to what you learned about assembly-line production in Chapter 3. How is what Ritzer describes similiar—or disimilar—to that process?

Ritzer's ideas are based on Max Weber's theory of rationalization, in which Weber argued that efficiency and formalized social control were the basis of the development of Western society and capitalism. Rationalization is composed of five characteristics: efficiency, calculability, predictability, control over uncertainties, and non-human technology. Ritzer applied each of these characteristics to the fast-food restaurant:

- **Efficiency:** The optimum method of completing a task, with the least amount of cost and effort. Fast-food chains are organized in an assembly-line fashion, wherein one person cooks the burger while another dresses it.
- **Calculability:** An emphasis on things that can be calculated, including performance results and revenues. This leads to the belief that large quantities signify quality, which is why it's called the "Big Mac" and not the "Good Mac."
- **Predictability:** The production process is uniform across all outlets to guarantee a uniformity of products and standardization of outcomes. The Big Mac you order in Toronto will taste the same as the one you order in Sudbury.
- **Control Over Uncertainties:** Through automation, outcomes are more predictable and uncertainties abolished. The fry cook need only toss in a basket of French fries, press a button, and in a few minutes a buzzer will announce that the fries are ready.
- **Non-Human Technology:** Computers and other complex machinery offer greater predictability in the production of a product. Every machine in a fast-food restaurant has a purpose, which aims to increase efficiency, predictability, and control over uncertainties.

Video: *George Ritzer on the Future of McDonaldization*

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While the assembly line was the brainchild of Henry Ford, it was McDonald's that expanded rationalization into other areas of society, thereby leading Ritzer to coin the term McDonaldization. He argued that McDonald's "fostered the homogenization of American culture and life, streamlined along a set of rational, efficient, and impersonal principles" (Ritzer, 1983). Consider the fact that McDonald's restaurants can be found in over 60 countries around the world and in every continent. Thanks to globalization, our North American ideals have infiltrated other countries by introducing corporations like McDonald's and exposing citizens to their rationalized structure.

Ritzer's arguments are not about McDonald's itself, but rather how the principles of running a fast-food restaurant have not only influenced other parts of society, but have even come to dominate them. Indeed, human interaction and identity have been impacted by these changes. Consider the example of Facebook. While many people believe it is a great way to stay in touch with friends, it is also highly McDonaldized. Users have access to the same template and can fill in as much or as little information as they wish, but it must be done within the parameters of the template. Everyone's Facebook page is laid out the same way, making it predictable. However, it is the user that must do the work of entering the information to create the page, which makes it more efficient for Facebook to make a profit. In the end, using Facebook as a means of social interaction is still just linking two or more computers together on one page, yet, for many people, it has replaced face-to-face interactions, mail, and phone calls.

There are negative consequences to all of this rationalization. When each person is only taught the one skill they need to do their job efficiently, they are not only easily replaced, they aren't able to expand their abilities. Interestingly, a lot of the efficiencies brought on by rationalization are actually for the benefit of the business not the customer. In fact, the customer is often required to do more work than in past models. While at one time a bank teller had to take your money and count it, you can now visit an automated teller machine (ATM), enter your deposit into the computer, put your money in an envelope, and walk away. While some would argue that this is a more convenient way of banking, it is also making the consumer do all the work, while bank fees and unemployment rates continue to rise.

We can see the dehumanizing effects of rationalization in the way we use technology today. Biometrics has taken the human element out of verifying identity; people favour emails over handwritten letters; and ordering pizza for delivery is as simple as clicking a mouse. To further increase the efficiency of disseminating information to others, even emails are sometimes replaced by shorter text messages. These messages often rely on acronyms or short forms to get their message across efficiently.

QUESTIONS

1. **Apply the five characteristics of rationalization to another aspect of society and explain how it has been McDonaldized.**
2. **Self-checkout machines are becoming more common in supermarkets. Do you think a fast-food order-taker could be replaced in the same way in the future? Explain why or why not.**

CHAPTER 7 REVIEW

KNOWLEDGE AND UNDERSTANDING/THINKING

1. What impact does media have on family time spent together?
2. Explain the social differences between having a conversation in real time (e.g., face-to-face or in a chat room) versus asynchronous time (e.g., corresponding by letter or email).
3. How can medical innovations have an impact on society.
4. How could biometric devices be used to increase security at a border crossing? A business? At home?
5. What impact will the reduction of language have on teen culture? How will shortened and abbreviated language affect teenagers interacting with adults and adult culture? Will dictionaries still be relevant in the future?

THINKING/COMMUNICATION

6. Explain how the creation of a virtual avatar would be interpreted through Weber's discussion of "ideal types" (see Chapter 3).
7. Identify five words that are listed in a recent dictionary that weren't included ten years ago. Why have these words been added?
8. According to television icon Homer Simpson, "Facts are meaningless. You could use facts to prove anything that's even remotely true!" Explain how this statement can be accurate, providing specific examples.
9. Why might Ritzer have chosen McDonald's as the subject of his case study? Could his theory be applied to other companies or organizations? Select a company or organization and see if it fits the model.
10. How does technology promote the division of classes? Explain.
11. What would be some advantages and disadvantages to removing oneself from their social network?

COMMUNICATION/APPLICATION

12. Revert back to your childhood and play a game of broken telephone. Start with a message that must be passed on by whispering from person to person. The last person must say the message out loud and compare it to the original message. Write two paragraphs explaining the process of passing on information. What considerations and assumptions are made as the message is being spread?

13. Examine a newspaper article and analyze it for its political point of view. Highlight words and sentences in the article to show how the language used can help shape an opinion by the type of words selected and the strength and association of these words.

14. Write a script for a Twitter conversation between you and a friend. Each line must be under 140 characters. Do not use any emoticons to explain what you are tweeting. Evaluate your tweets to see if they can be interpreted in a way other than their intended message. As a class, discuss how this could be avoided or clarified within the limits of 140 or fewer characters.

15. What impact, if any, would there be to an urban Canadian person's social and economic well-being if they were unable to access the Internet? Attempt a "challenge" and go 48 hours without accessing the Internet. What was the impact on your day-to-day life?

16. Predict the next big technological change. Describe what it would be, how it would be used, and its impact on society.

CHAPTER 8

Growing Trends in Science and Technology

In the distant past, most humans had three primary resources: stone, wood, and fire. As our knowledge grew, we learned to domesticate crops and animals and learned to use more advanced tools and resources. We learned to do more than hunt, gather, or farm and became specialized within trades and professions. Today we are surrounded by human accomplishment. Humans have come so far that some geographers and ecologists are informally suggesting that we live in a new geologic age wherein humans are actually shaping the physical world that we live in. As we move away from our natural origins and move into a world of wires and virtual space, what does this mean for humanity?

In this chapter, you will consider how technology has influenced the way people relate to one another and how participating in social networking affects your self-perception. You will also look at how the work environment has been changed by technological growth, you will examine the influence technology has on you in school and at home, and you will study the waste produced by outdated gadgets and the effect this has on the environment. Finally, the chapter will explore the addictive nature of using technology.

CHAPTER EXPECTATIONS

By the end of this chapter, you will:

- analyze patterns of technological change from the social science perspective
- identify how society has adapted to cope with the social stressors of technological change on the individual
- evaluate the social impact of new technologies on social structures and dynamics
- analyze the technological advances which have led to cultural adaptations
- demonstrate effective data collection skills and analyze research information

KEY TERMS

conspicuous consumption
constructivism
containment theory
e-waste
non-profit organization
telecommuting
transparency

Interactive: *Interpreting Graphs*

FIGURE 8-1 How does technology shape our world?

KEY THEORISTS

Jean Baudrillard

Charles Cooley

Emile Durkheim

Marvin Harris

Travis Hirschi

Marshall McLuhan

Jean Piaget

Bart Simon

Thorstein Veblen

LANDMARK CASE STUDY

The Internet's Impact on the Perception of Copyright Law

Spotlight On … Living in a Connected World

Having access to the Internet means having access to a vast pool of information and resources. Social networking opportunities, online medical advice, legal help, and government agency forms can be accessed through online portals. Government agencies are moving toward an online interface, so that even people visiting the physical agency office building are being instructed to use the computers inside the building to access the proper forms to receive the services needed.

In 2010, eight out of ten Canadian households had access to the Internet (Statistics Canada, 2011). Of the Canadians living in metropolitan areas identified in the Census, 81 percent had Internet access, compared to Canadians living in rural areas where only 71 percent had Internet access. The distinct advantage for those living in an urban area is more immediate access to public services; thus, city dwellers are able to meet their personal needs in a much more efficient manner. The introduction of kiosks connected to the Internet that provide access to online information broadens the difference. Such kiosks are available throughout larger city centres to increase the access to and availability of information for people living in urban areas.

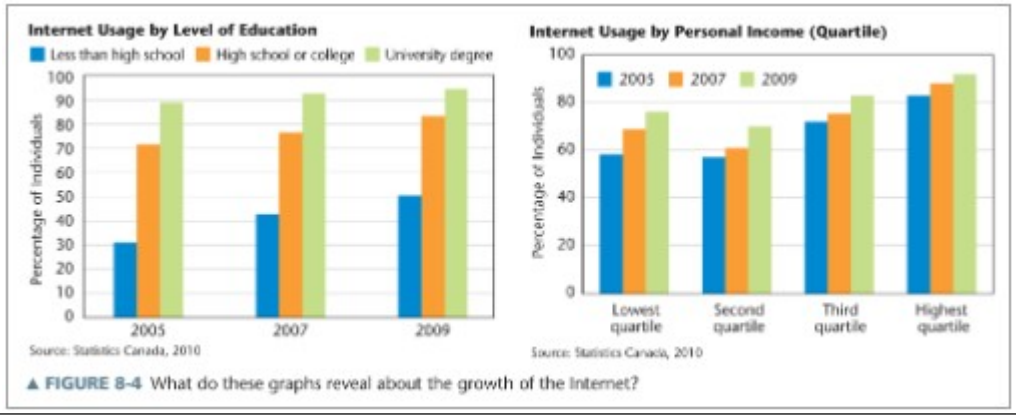
Households with Internet Access	2010 %
Canada	**79**
Alberta	83
British Columbia	84
Manitoba	73
New Brunswick	70
Newfoundland and Labrador	74
Nova Scotia	77
Ontario	81
Prince Edward Island	73
Quebec	73
Saskatchewan	76

FIGURE 8-2 As more services and resources move online, what are the consequences of not having Internet access?

The Advantages of Being Connected

Having an Internet connection provides distinct advantages to users. These advantages include a limitless resource for information, increased personal empowerment, an understanding of people from varied backgrounds, and economic success (Rehm, Allison and Johnson, 2003). Access to information provides the opportunity to solve problems and gives users a sense of empowerment when they are able to advocate for themselves and solve their own problems. The Internet allows for a wide variety of opinions and cultural beliefs to be posted. Reading and experiencing different viewpoints offers a more complete understanding of another person and how his or her situation can be influenced by the immediate surroundings. More content and government services are being moved to Web sites for convenience and to reduce the amount of time (and person power) to get the correct files to the recipient. Using the Internet is also a factor in increasing economic success. Companies are able to offer better deals to online shoppers because the companies require only limited storage and overhead to house and protect their product. Better deals can also be found when comparative shopping at various Internet sites. E-coupons are offered to further reduce the price of items bought on the Internet. The increased speed of the Internet allows for video images and sounds to be broadcast in real time, further deepening the user's understanding of what the people in the images are feeling. Given these distinct advantages, it behooves every Canadian family to get online. But who is gaining access to the Internet? What factor(s) increase or decrease the rate of Internet access for a family?

FIGURE 8-3 This elderly couple is using a tablet to fill a prescription. How has being connected influenced the lives of Canadians?



▲ **FIGURE 8-4** What do these graphs reveal about the growth of the Internet?

FIGURE 8-4 What do these graphs reveal about the growth of the Internet?

When examining Internet access relative to family income, clear distinctions occur between the digital haves and have-nots. If a family earns more than $87 000 per year, they have a 97 percent likelihood of having Internet access (Statistics Canada, 2011). Families earning less than $30 000 per year have only a 54 percent chance of having Internet access in their home. Households in this income range reported cost of service and cost of equipment as major reasons (24 percent) for not having home Internet access (Statistics Canada, 2011).

SKILLS PRACTICE

Internet access varies according to a number of factors. Keep this in mind as you investigate the growth of the Internet throughout the country through the following activities.

1. Using Figure 8-2, create a graph and interpret the findings. What inferences can be made from the data?
2. Using a map of Canada, write the percentage values in the corresponding province. What does this tell you about Internet connectivity within Canada?
3. Assuming that having Internet connectivity provides an advantage to people who can access it, make three statements about the trends and/or patterns you see on the map you created in question #2.
4. Using Figure 8-4, write two statements of fact shown by the graphs.

An example of a sentence that can be written could be: Looking at the lowest income quartile, there was an increase of 17.5 percent in Internet access rates from 2005 to 2009. This increase could be due to the proliferation of new devices that are able to access the Internet in addition to the traditional desktop computer and laptop, i.e., smartphones, game devices, etc. Alternatively, the rapidly declining prices of technological devices may be providing more people with monetary access to purchasing these devices.

THE CHANGING CANADIAN LANDSCAPE

The way Canadians act and interact is influenced by the technologies they use. In the world of work, businesses today look different than they did 20 years ago because of the proliferation of the Internet, which gives people the flexibility to work off-site and even from home. Large office buildings are not necessary when the workforce does not need to be housed by the company in a single building.

VOICES

[E]ach culture fills the "molds" with its own distinctive content—its own ideas.

– Marvin Harris

Anthropologist Marvin Harris argued that all culture is shaped by the surrounding environment and the resources that are available within it. As the resources and environment change so too will the culture. But Marvin Harris also believed Karl Marx was right and that change is also influenced by those cultural forces that hold power. New resources or cultural changes will often support the groups that are in power and not necessarily the culture as a whole. For workers it means that how they have done their jobs in the past will be changing as technology is introduced and companies ask their employees to change with the times.

More *to* Know

You were introduced to Marvin Harris in the Prologue.

The Influence of Technology on Work

Competition for employment has increased for people entering the workforce. People are no longer competing with other workers in their geographic area; they now also compete for employment on a global scale. Technological advancements require specific skill sets. Companies seek out qualified workers and create clusters of specialized workers. Silicon Valley in the United States of America is a good example of computer manufacturers clustering in one small geographic area. Talented and qualified workers gravitate toward this area for a chance to use their skills to create cutting-edge technology.

However, with advances in Internet and security protocols, workers can also be anywhere in the world and still be part of a project. Through **telecommuting**, the talents of the best and brightest in a field can be used to create a final product. Jobs with telecommuting options may include accountants, computer programmers, digital illustrators, customer support representatives, and ecommerce analysts, just to name a few. Worker productivity is increased because the project is moved electronically to workers around the world. Projects can receive 24-hour attention as long as they move within the working hours of the local workday. Workers have the benefit of others completing parts of the project, which allows the project to be finished faster than if the work stayed in one time zone and only received a regular workday's worth of production. For example, the author of a book may be in Cornwall, Ontario, while the editor may be in Victoria, British Columbia. The book could then be typeset in India and printed in China. Because of the differing time zones, while the Canadian team is fast asleep, the typesetters in India are just getting their day started, making for greater efficiency in getting the book ready for publication. For the workers it also means a change in skills. As telecommuting becomes an important resource, it shapes the work culture and therefore creates a need for workers to be computer literate.

▶ **telecommuting:** working from home or another off-site location through the use of Internet-connected equipment, such as computers and fax machines

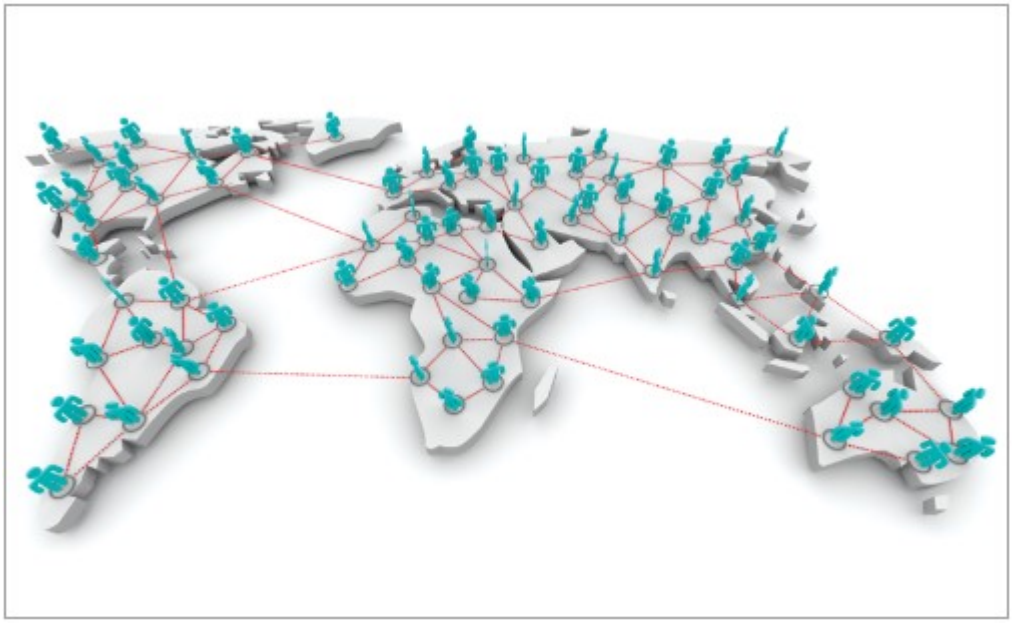


FIGURE 8-5 Today's work environment creates global links. How has the increase in communication technology benefitted corporations?

When we look at any new technology, such as telecommuting, why could the work of Marvin Harris and Karl Marx be useful to our understanding of its impact?

The Home Office

The workplace has also changed for new generations entering the workforce. Large office buildings are starting to empty as the number of telecommuters increases. In this way, a person's home becomes their workplace. While they may drop into the office occasionally, for most telecommuters, their home is where most of their work is completed. This poses an interesting challenge for these workers. Dividing home tasks and work tasks can be difficult. The temptation to complete chores around the house during business hours can greatly impact the efficiency of the worker. Working at home may also impact the person's concept of work-home division. Being able to leave the office provides a psychological division between home and work. Considering that 31 percent of working Canadians see themselves as workaholics, it's not surprising that for some telecommuters leaving unfinished work can increase stress levels because of the feeling that work is never over since they haven't physically left the workplace (Statistics Canada, 2007). The reverse is also true. People working at home can feel obligated to complete home-related activities during work hours. Caring for children, cleaning the house, or simply answering the home phone take away from time allotted for work and make the worker less efficient. While the Internet is what allows for telecommuting to function, it can also serve as a distraction. With no boss to peak over your shoulder, it's easy to spend work time surfing social media and other sites. Finally, working from home can also be very isolating. What would it be like to work at home, never seeing another person but those who live with you? Emile Durkheim's theory of anomie can apply to the telecommuter as well. As people work from home, the norms usually imparted by coworkers are not as easily passed along.

FIGURE 8-6 Separating work and home life is a balancing act. When a person works from home, can there ever be a separation between work and home life?

Increasing efficiency for telecommuters can be accomplished in a variety of ways. Setting up a room dedicated exclusively to work and giving it the look and feel of an office can help keep focus on work-related tasks. Creating a daily to-do list and a schedule for the day can also be helpful in keeping accountability. It is also important to take time for yourself and have lunch, as you would in a regular office. This mental and physical break allows you to not only step away from your work but also to throw in a load of laundry if necessary (but fold it later).

What are the benefits and challenges of telecommuting? To what extent will the shift from office to home office impact Canadian society?

IN FOCUS BlackBerry: Keeping You Constantly Connected

When people are asked what their needs are for survival, food, water, and shelter are common answers. What other items do Canadians require to live well? What about the need to be contacted any time, anywhere? Is that a necessity?

Waterloo, Ontario's Research In Motion Ltd. (RIM) was founded in 1984 by two engineering students, Mike Lazaridis and Douglas Fregin. Their focus was on wireless packet-switching data communication networks. In 1986, their mobile communication pager had the ability to send and receive short six-line messages. In 1998, RIM collaborated with Rogers Cantel, BellSouth Wireless, and IBM to provide a wireless device that could send email and provide basic two-way communication; hence, the birth of the BlackBerry.

The first BlackBerry was introduced to the marketplace in 1999. While traditional cell phones had been in the marketplace for some time, the BlackBerry brought together something users had been wanting for years: an easy way to write email messages using a cell phone. The BlackBerry's QWERTY keyboard made typing text far easier than in the past. It quickly exploded onto the marketplace, and it didn't take long for users to become addicted to having information at their fingertips and the comfort of being available at all times.

FIGURE 8-7 What has made instant information so important when we were able to we live without it in the past?

While people were able to keep connected with BlackBerry, it has also created certain expectations of rapid response time and constant availability, making it difficult for users to separate themselves from their work (Middleton, Scheepers and Cukier, 2005). Hearing the familiar *ping*, or customized ringtone, users reach for their devices to fulfill their need for immediate answers. Who emailed me? Is that file I've been waiting for finally here? Users also report that answering messages as soon as they're received is motivated by the need to be proactive and to use information to reduce additional work later.

Video: *Nick Bloom on Telecommuting*

Many users feel compelled to check their device day and night. Consider the following quote from a BlackBerry user:

> I check the thing before I go to bed at night, and I check first thing in the morning, and I would never, ever do that with my computer. I would never log on and check my email at home before I went to bed or when I got up (Middleton, Scheepers and Cukier, 2005).

Users also report that a BlackBerry provides them with the feeling of not missing anything from work when they are away. Canadians exhibit a need for this device. More than 45 percent of young employees said they would rather lose their wallet or purse than their smartphone device (Woods, 2011). For many Canadians, their BlackBerry or smartphone holds all of their important information, such as personal and work-related contacts, appointments, music, and emails. Its ability to influence the way Canadians organize their time and how it becomes a priority in their lives demonstrates its importance in defining who we are as Canadians. In 2011, BlackBerry service was interrupted for half of a day, which sent its users into a tailspin. However, the OPP noted fewer traffic-related accidents that were due to driver use of screen devices during the outage (Flavelle, 2011). The Highway Traffic Act forbids Ontario drivers from holding their cell phones while driving because drivers become too distracted while doing so. For some Canadians, the challenge is to function without this device while dealing with the urge to be available 24 hours of every day.

QUESTIONS

1. What are the benefits and drawbacks for telecommuters of being constantly connected through their BlackBerry or similar device?
2. Describe how a cell phone could help someone integrate into society and avoid the feeling of anomie.
3. Describe how a lack of constant communication can increase feelings of isolation or rejection.
4. Has BlackBerry created an overdependence on constant technological communication? Explain why or why not.

Adapting to the New Workplace

Creating a new understanding of the workplace requires a shift in thought. Reality may not fit a person's perception of how the workplace should look and how interaction should take place. Using psychologist Jean Piaget's theory of **constructivism**, workers actively seek to make sense of their new workplace by using constructs, which are categories used to evaluate phenomena and provide meaning to the world around them. Depending on the individual, he or she may have differing and more or less abstract constructs, each with varying degrees of flexibility. Cognitively complex people are better able to look at a topic from a number of perspectives and analyze concrete or abstract situations with confidence.

▶ **constructivism:** the theory that a person's knowledge is made up of subjective constructions based on their experiences and ideas

Workers in the new economy must adapt their constructs to meet the changing workplace. For example, a person's initial construct of the competition for a job is that it is limited to the people in the immediate geographic area. The reality could be that the company requires that specialists from around the world who possess skills not held by the local applicants also be included. The original construct of job competition helps the applicant make sense of who he or she is competing against. However, this understanding needs to be re-evaluated to include a wider breadth of possibilities, which will be addressed when the applicant learns about the competition and will allow the person to adjust his or her understanding to fit the new information.

More *to* Know

You learned about Jean Piaget in Chapter 1.

The Growing Value of Social Media

If you had the choice between a job with a higher salary but no social media and mobile access versus one with lots of access but a lower salary, which one would you choose? The 2011 Cisco Connected World Technology Report, an international study of 2800 college students in 14 countries, found that the next generation of employees will be significantly influenced by the access to and use of these technologies in the workplace when searching for a job. According to the Cisco study, one in three college students would prioritize social media freedom, device flexibility, and work mobility over the expectation of a higher salary (Woods, 2011). The issue of the use of technology devices is so important that 64 percent of students entering the workforce plan to ask about social media use policies during the job interview. Fifty-six percent of these new workers would not accept a job offer if social media was banned from the workplace (Woods, 2011). These new demands are reflective of the importance of social media devices and technology to the next generation entering the workforce. Human resource departments in many companies are already starting to address the demands for more work flexibility, mobility, and non-traditional work styles (Woods, 2011).

FIGURE 8-8 Should social media become standard office practice? What are the benefits and drawbacks?

REFLECT AND RESPOND

1. What impact has computerized communication technology had on how people organize themselves for work?
2. What are the benefits to a family of having someone work from home? What are the benefits of having employees telecommute to the business?
3. Constantly communicating using electronic media will eventually lead to isolation of the user, causing more harm than good. Explain this position and whether you agree or disagree with it.
4. How might Emile Durkheim's idea of anomie be similar to the need to have access to social media?
5. Consider the job held by one of your family members. Could it be completed through telecommuting? Why or why not?

SOCIALIZING AND TECHNOLOGY

Staying in contact is important. This fact is highlighted by the duration and frequency of communication sent through technology devices. Social networking sites fill this need and allow for communication to take place with immediate results. Social status is closely tied to the ability to communicate and be part of the virtual social networks. Face-to-face communication is no longer necessary to be part of a group of friends.

Social Networks

Humans are naturally social animals. The need to interact and communicate seems to be written into our DNA. From a young age, we are socialized and encouraged to interact with family and friends.

The popularity of social networking is growing exponentially. Millions of Canadians log onto Facebook, the most popular social networking site, every day to catch up with friends and to find out the latest news in the lives of their "friends." In an average month, nearly 15 million Canadians log onto Facebook—almost half of the population! Ontario alone has approximately 6.4 million users and Canada has about 9 million users that log on daily (Breikiss, 2011). In the virtual world, this is the popular place to "hang out." Geographically, Canadian city centres are spread out, creating a physical barrier which can inhibit socialization between Canadians outside of their immediate area. Facebook shortens the physical distance between Canadians and has no additional costs associated with its use, unlike making a long-distance telephone call or even mailing a letter.

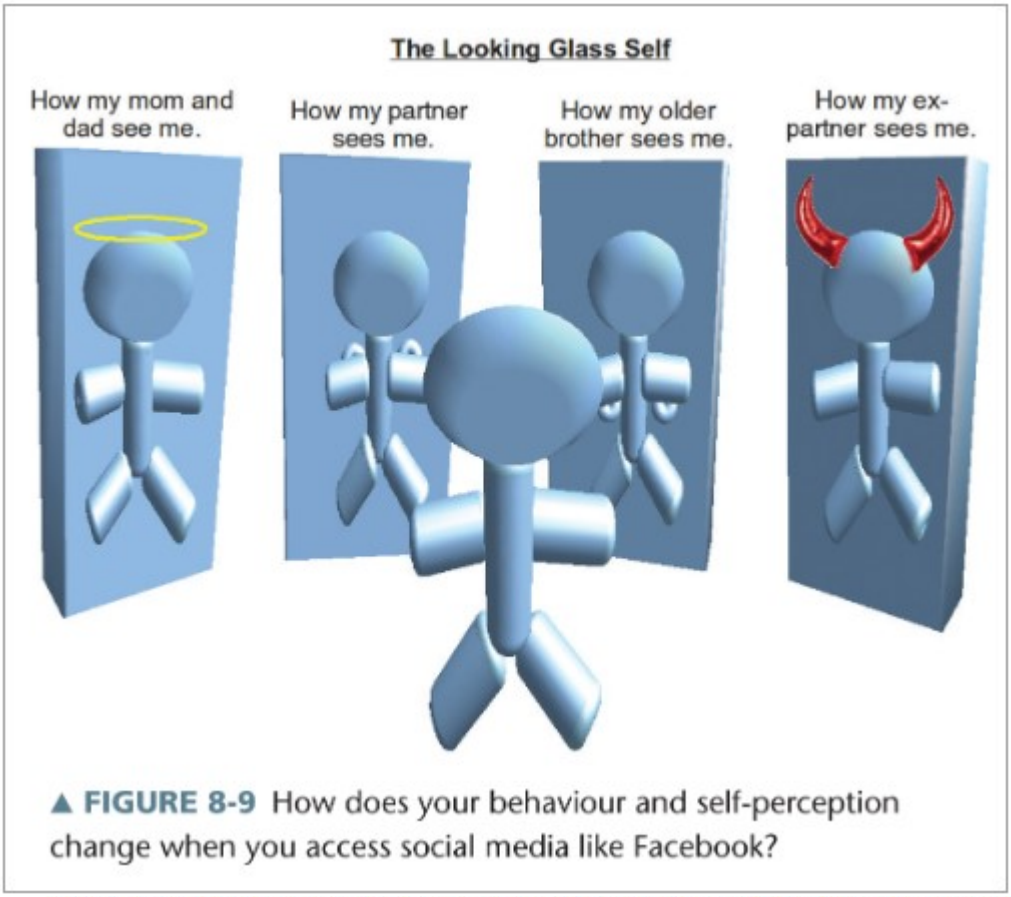


FIGURE 8-9 How does your behaviour and self-perception change when you access social media like Facebook?

Canadians continue to be a friendly nation. The global average friend count of Facebook friends is 130 friends per user. In Canada, users have an average of 190 friends (Breikiss, 2011). This may be due, in part, to the large number of Canadians who have devices that can access Facebook accounts. Computers, phones, tablets, game systems, etc., are all Internet-ready. With a greater number of access points, comes a greater ability to communicate using Facebook.

Facebook: This Is Who I Am

Facebook is not just a social networking portal on the Internet; it serves a secondary purpose in helping to define who we are and how we are seen by others. Applying Cooley's looking-glass self theory, we can see how this social networking program is a useful tool to help understand who we are. Cooley's theory requires that a person have a belief about what others think of him or her. Facebook provides multiple opportunities to receive this feedback. Cooley would see this as a rich source of feedback to help create the social self from the reaction of others. It is not surprising the amount of time spent using this social networking site by teenagers that are in a transitory stage seeking identity and defining who they are as individuals. This would require a lot of feedback. Receiving postings on walls, ratings on images, discussions in private messages, being tagged in photos, posting links to other pages, or even writing comments about what others have posted are all ways that information about us is collected. Using this information, the user is better able to understand how other people perceive them. This program goes even further by linking people who have similar likes and interests on topics or through mutual friends to reinforce the idea that linking or showing an interest in something is accepted by this exterior group.

More *to* Know

Look back to Chapter 4 for more about Cooley's looking-glass self theory.

SKILLS FOCUS

Log on to a social networking site and follow the posts on a single topic. Collect 15 responses to a single question and create four categories for these responses. Summarize the findings under each category heading into one sentence.

Recent studies have linked Facebook to depression as many see their lives as being boring compared to the lives projected by others on their Facebook friends list. Of course, as Cooley's theory suggests, what's on people's Facebook page is not really how they are, but how they wish to be seen. The looking-glass self continues throughout a person's life and is continuously modified through interaction. Facebook provides the necessary input to make these modifications with real-time feedback from a wide range of friends to provide more complete feedback from multiple inputs. This program goes even further by linking people who have similar likes and interests on topics or through mutual friends to reinforce the idea that linking or showing an interest in something is accepted by this exterior group.

The importance of this social media communication tool is reflected by the amount of time spent logged in. On average, each month, Canadians spend 400 minutes logged in to Facebook (Breikiss, 2011). This translates into approximately 20 minutes of each day spent communicating with friends. As a social priority in a busy world, this constitutes a significant amount of time. If half of this time was spent doing physical activity, Canada would be a healthier nation.

How might Erikson's ideas about adolescence be used to explain the time teenagers spend on social networking sites?

Cellular Technology and Socializing

Technology has woven its way into every part of people's lives. Cellular technologies, including smartphones, continue to flood the marketplace. Adults and teenagers alike are becoming "wired" and accessing the vast amount of information available online through their phones.

Teenagers are using this technology to support their social lives. According to a national survey from CTIA and Harris Interactive, cell phones have become so important that 47 percent of U.S. teenagers said their social lives would end or be worsened without their mobile phones (Marketing Charts, 2008). Of this group, 57 percent went on to credit their phones with improving their lives (Marketing Charts, 2008). Possession and use of a cell phone may lead to increased social behaviour, creating a better life for the teenager. This same survey reports that teenagers believe that a person's cell phone tells others a lot about their social status and popularity. While clothing is still used as sign of status, accessories like jewellery, watches, and shoes are not viewed as being as important as they once were when compared to a person's cell phone. Thorstein Veblen (1857–1929) studied what he called **conspicuous consumption** in 1899 and found that even then people purchased products to increase their status. However, what he found was that the person selling the product always got the most out of the transaction.

conspicuous consumption: the acquisition and display of expensive items in order to attract attention to one's wealth or to suggest that one is wealthy

FIGURE 8-10 What can't a smartphone do? What features do you think will be standard in smartphones five years from now?

Cell phones are used for entertainment as well as socialization. One-third of teens play some type of game on their phone (Marketing Charts, 2008). Online content or games stored on phones can be played because many phones possess Bluetooth and/or WiFi technology to connect to Internet networks. Movies and television shows can be downloaded or streamed to the cell phone, turning it into a portable television set.

Cell phones are also considered an important part of a teenager's ability to stay safe. Remaining connected to friends, family, and a wealth of information provides a sense of security for teens. Eighty percent of U.S. teenagers report that cell phones provide a sense of security (Marketing Charts, 2008).

Communication among teenagers has also changed with the proliferation of the cell phone. In 2008, teenagers reported that they would rather text than call their friends. Without texting, over 47 percent of teens said their lives would be "worsened" (Marketing Charts, 2008). This was especially true among female teenagers (54 percent versus 40 percent) (Marketing Charts, 2008). The advantage to texting is that teenagers are able to multi-task, and it provides a fast and fun method of communication. However, there are also a number of disadvantages of texting. For example, the time required to follow a conversation can be longer than in other types of communication. Either participant may be interrupted while texting, causing a pause in the conversation. Waiting for a response is polite, but when you add up the time wasted in waiting, it can become significant. Other disadvantages can include causing a distraction during class time as well as being distracted while doing homework and not being able to concentrate on a task because of the attention needed to respond as soon as a message is received. Yet, more than one billion text messages are sent each day globally. This shows the significance of keeping in contact, even if the messages are only a few characters long. Keeping in touch is important for adults and teenagers, despite the distractions they cause.

What impact does your cell phone have on your life? Do you see any potential issues with the fact that teens would rather text than call each other?

Containment Theory and the Internet

Ever wanted to cheat on a test and look to see where the teacher is to see if you could get away with it? You're not alone. Social control theorists like Travis Hirschi argue that humans are selfish and animalistic inside but are able to control these primal urges because of the internalization of values instilled to them by society. **Containment theory**, a subset of social control theory, indicates that there are two ways which this is done:

containment theory: a subset of social control theory which states that our personal values and social controls keep our behaviours in check

1. Inner containments: Our self-esteem and moral development
2. Outer containments: Social controls such as teachers, police, or parents

More *to* Know

You learned about Hirschi's control theory in Chapter 6.

In our society the hope is that the agents of socialization in our lives have taught us the social norms and values so that we control ourselves by our own personal inner containments. Should those fail we have authoritative forces to keep us in check. It is a balancing act that is always going on in our society. Do we allow people the freedom to control themselves or do we risk giving the power to authorities and worry they might use it for their own benefit?

The Internet gives computer users the unique ability to hide from the outer containments in the privacy of their home. This personal power can be used to learn about various things, explore different identities, and even chat with people that would normally be seen as unacceptable by the authority figures in people's lives.

The growing development of the Internet also allows us to get access to copyrighted material without paying for it. In the past, a person would have to go into a store and steal a physical copy to unlawfully access this type of material. Such actions done in public would bring down outer containments, but the computer lets people perform them privately, without other people's knowledge or consent.

Marshall McLuhan

Marshall McLuhan believed that technology worked as an extension of the human being. Cars are an extension of our feet, televisions are an extension of our eyes, and the computer is an extension of our nervous system. With all evolutions in technology, he believed that there were positives but also negatives. He even suggested that a technology that was designed to solve a specific problem would often cause the very thing it was trying to solve. An example of this would be cars. They were designed to make people get from point A to point B more quickly, yet having too many cars on the road creates traffic jams, which delays the trip. In both the classroom and at home, people's lives are changing as technology extends use past what we can see and hear in the space we are in. If you're sitting in class or at the dinner table texting, where are you really?

VOICES

We shape the tools and thereafter the tools shape us.

–Marshall McLuhan

Video: *Understanding Marshall McLuhan*

In Focus Social Networking and Bullying

With the expansion of Internet technology and the increase in digital access points, virtual meeting and socialization spaces are continually being created in cyberspace. When a connection is made between social network users, a place for socialization materializes in the cyber world. What happens in these spaces is not monitored consistently, if at all. The Internet's greatest strength is also its greatest weakness—its freedom. Internet safety is a concern and should be something that is taught to everyone.

On October 17, 2006, Megan Taylor Meier from Dardenne Prairie, Missouri, committed suicide. This happened three weeks before her fourteenth birthday. The catalyst for her final act was cyberbullying that occurred through the social networking site MySpace.

Megan was under the care of a psychiatrist and had been diagnosed with depression, attention deficit disorder, and had self-esteem issues about her weight. Megan was the neighbour of Lori Drew, 47, and her daughter. Megan allegedly spread rumours about Lori Drew's daughter. This gossip prompted Lori to create a false 16-year-old male person online, named Josh Evans, who she created to "befriend" Megan. Throughout their relationship, Megan never met "Josh" but they became close friends. Josh claimed to have recently moved to the area and did not have a phone yet. Their relationship grew over time and Megan was seen as acting positive and her demeanour was uplifted.

One day "Josh" decided to end the relationship with Megan and exact revenge for the alleged gossip spread about Lori Drew's daughter. The tone of the messages exchanged changed and became cruel. Josh taunted Megan and informed her that everyone at school disliked her and would be better off without her.

Twenty minutes after receiving the message, Megan took her own life.

Cyberbullying and the Law

Although Lori Drew was initially convicted of violating the Computer Fraud and Abuse Act in 2008, her conviction was overturned on appeal in 2009. In reality, there were no specific laws or regulations to deal with a case like this. Jurisdictions were motivated to make laws to address harassment over the Internet and cyberbullying.

FIGURE 8-11 Megan Meier's mother holds photos of her daughter. Megan took her own life because of an online bullying incident orchestrated to humiliate her.

In Canada, schools are having students sign computer use agreements that prohibit cyberbullying and the misuse of school board computer property for the purpose of harassment. Law enforcement agencies run seminars teaching parents and students about cyberbullying and the new laws making this practice punishable. The Ontario Ministry of Education has enacted legislation called the Safe Schools Act, which provides for the right of all students to learn in a safe environment as a basic right.

QUESTIONS

1. Do social networks make it easier for bullies to harass others? Why or why not?
2. At the time, there was not a specific law making the action of creating a false online persona illegal. Should a person be allowed to be charged with a crime if the law is created after the action has been committed? Explain.
3. Conduct research to find out the effect this case had on laws relating to cyberbullying.

Landmark Case Study

The Internet's Impact on the Perception of Copyright Law

The idea of copyright is not something new. Creators of content seek to protect their intellectual rights for an original idea that is put to use. Private property and its protection are at the cornerstone of Marxism. Having the right to deny someone information and put that advantage at the disposal of the bourgeoisie creates a power differential between the classes. In this case the idea alone cannot be protected but the physical use of the idea, like a song or an illustration, can be covered under copyright law. Increasing sophistication in technology allows for more efficient means to reproduce material. Inventions like the camera, photocopier, and CD burners are examples of machines that were invented with the purpose of reproducing material and/or information. Using today's technology, television, music, video, and other content is being converted to formats that can be transformed, sent, and "unpacked" across the wired and wireless networks all around the world. Most of the world is connected to cyberspace using numerous Internet-ready devices. IMS Research reported that the five-billionth Internet-ready device went online in 2010 (Cox, 2010). This number is expected to increase by a factor of four in the next ten years. Accounting for cell phones, tablets, eBooks, Internet TVs, cameras, digital picture frames, and other electronic devices, we should easily hit 22 billion Internet-ready devices in that time period (Cox, 2010). This allows for the acquisition of online material to be done in privacy and without the knowledge of the actual owner of the digital property. As these technologies become more efficient and better able to transfer this information, the threat to copyright increases as a result of the mass proliferation of the material across a larger and wider audience who do not have, or who have not acquired, permission to engage the material. For containment theorists, this means that outer controls from the government are not working and inner controls inside the individuals are weak because the profit is so great. In some cases there are no inner controls present as many do not see anything wrong with digital piracy. In the United States and Canada, owners of such material have put great pressure on the governments to protect what, under the law, is theirs.

SOPA and PIPA Protests

On January 18, 2012, over 7000 Web sites participated in a huge protest opposing U.S. government bills H.R. 3261, the Stop Online Piracy Act (SOPA), and S. 968, the PROTECT IP Act (PIPA) (Christensen, 2012). These bills seek to curb online piracy, but they may also pave the way for widespread Internet censorship. In protest, Web sites like Wikipedia, which gets over 2.7 billion U.S. visitors each month, shut down for a day and replaced their content with a message about the protests (see Figure 8-12) (Fahrenthold, 2012). By blocking their content, these Web sites were sending a political message showing what the Internet would be like if the SOPA and PIPA bills became law. The concern with these bills relates to who should have the authority to control access to knowledge. The protests show the importance that we as a culture place on unrestricted access to information. In this case, the medium—technology—is an integral part of shaping our collective knowledge as well as an efficient method to mobilize a large number of supporters in a short period of time. The mobilization of ideas and change was unparalleled. The *Washington Post* (2012) reported that 7 million signatures were collected from Google. The English-language version of Wikipedia had more than 162 million people view the blackout page and had more than 8 million U.S. readers look up their elected representative through the blackout page to protest these measures in 24 hours. This type of activism was categorized as a "flash flood" because of the speed at which people were able to voice their opinion and have it sent to the U.S. government. When millions of people voice their opinions, governments take notice, and some aspects of the bill have already been changed or removed. In fact, President Barack Obama stated that he would not support the legislation if it were passed by Congress.

Bill C-32 and C-11

Canadian copyright legislation was last updated in 1997. Governments have attempted to update and clarify these laws unsuccessfully several times in recent years. In 2005, the Liberal government introduced Bill C-60 and, in 2008, 2010, and 2011, the Conservative government tried to pass Bill C-32 and Bill C-11, which is a rebirth of C-32. Bill C-32 sought to criminalize the act of circumventing, or making available to the public the ability to circumvent digital rights software locks. The negative aspect of this law is that it infringes on Canadians' rights to transfer something they own to another medium. Bill C-11 (The Copyright Modernization Act) will allow Canadians to copy content from one device to another but does not allow for the copying or breaking of digital locks on copyrighted material. The main concern with Bill C-11 is that users may be deemed to be violating it by doing something as simple as uploading a legally purchased CD to their computer so that they can transfer it to their MP3 player to listen to it on the go. Making downloading illegal would marginalize a large number of Canadians, making it difficult for any political party to make this an election issue. A party seeking election does not want to marginalize its supporters before a vote. Downloading is also widespread among the Canadian population. This practice crosses different age groups and social incomes. It is not one specific deviant group following this practice, making targeting strategies to deal with this practice difficult. A solution to downloading will need to appeal to a wide range of Canadians with different interests and motivations for downloading material. The Conservative government did not have a majority when trying to pass previous incarnations of Bill C-11; however, at the time of publication of this textbook, the Conservative party held a majority, making it more likely that the bill will be passed. The evolution of how to protect electronic content is far from over.

For many people these laws go too far, as outer containments—in this case the government—have pushed the barriers of their responsibility and people now fear that in an attempt to protect copyright holders the government is trying to take away people's access to an uncontrolled Internet or their personal privacy.

Copyright Issue: File Sharing

The debate over digital copyright is nothing new. In the 1990s, person-to-person file sharing started to gain in popularity. File-sharing programs like Napster allowed users to download music and other files from other users, rather than from a database. The music industry was enraged at this new technological advancement. It is difficult for laws to keep up with the changing technology. Consumers of this information adapt and continue to download. Finding loopholes in the laws and the technology allows many users to continue to gather and watch information online for free.

FIGURE 8-12 What happens when knowledge becomes censored?

QUESTIONS

1. What is the motivation behind the push to create stricter downloading laws? What are the potential ramifications of doing so?
2. What is the current state of digital copyright in Canada? How will the proposed laws in Bill C-11 impact how Canadians listen to music and watch movies?
3. What bills are currently before Parliament? What are some bills that have recently been passed? What are some that have recently been defeated?
4. Explain the social and political climate surrounding the bills and how that climate influenced the outcome.
5. Why haven't Canadian Web sites launched similar blackouts to protest Bill C-11?
6. Are all artists concerned about the copyright infringements on their work? Do a search of those who support Bill C-11 and those who open their work up to the world through venues like YouTube. What are the differences in their points of view?

POINT/COUNTERPOINT

Should Educators Increase the Use of Technology in the Classroom?

In an effort to engage students and bring new content to the classroom, educators look to new technologies to engage students in new learning materials. Internet content has expanded exponentially. Search engines and databases containing millions of pages of information can be accessed. Other technological devices, like MP3 players, tablets, interactive white boards, and so on, take learning into the twenty-first century. The question remains whether the technology enhances students' learning or if its benefits are negligible.

Yes	No
• Using the Internet in the classroom allows for access to different groups around the world. Networking with these groups gives students perspective and broadens student understanding of different viewpoints. • Students are being prepared to use the technology demanded by industry and the business world. Students receive training in the programs and devices that are useful in both the work world as well as the next levels of education. • Students are exposed to the proper use of this technology by an appropriate model. • Individual education programs can require teachers to use technology in the classroom. Providing a differentiated experience in presenting information benefits the entire class and its unique learning styles.	• Technology can emphasize inequalities between students. Students who do not have access to the Internet at home or to the latest devices may be left out. • Technology is a distraction for some students. The temptation to check email or check other social networking sites is a temptation students have difficulty managing. • There is the potential to violate privacy rights of the students and the teacher. Digital devices have the ability to record and post images to the Internet. Posting information without permission is not allowed. • Without proper training, technology is not used to its full potential. Investing in something and not using all of its functions and abilities is not a responsible use of funding.

QUESTIONS

1. Choose the two most relevant arguments from one side of the argument. Collect more research on the points that were selected in preparation for a class discussion on the topic of technology use in the classroom.

The Impact of Technology on the Family

Computer technology and the family can be examined using the family systems theory. This theory conceptualizes the family as a dynamic self-regulating system where family interactions cannot be understood in isolation. Only when viewed as a large group can the relationships and interdependent nature of the relationships be understood. Each new generation of personal computer that is released on the market is more affordable and more user friendly. Today, programs are being created to engage toddlers in computer use, which means children are growing up using technology before they are even speaking in full sentences. As such, computer technology becomes integrated into their lives from such a young age that it is considered a normal part of everyday life.

What impact do computers have on family bonding time? Television commercials promote high-speed access allowing for multiple connections. Each person in the household can view the content he or she wants. But what happens to family sharing and bonding time when each person is off watching or playing in different rooms? Could computer technology be driving the family apart? Nie and Hillygus (2002) proposed a displacement hypothesis that states a finite amount of time exists in a day. Time spent using a computer and being on the Internet takes away from this time where a person can be socializing or engaging in other activities. Veenhof, Wellman, Quell, and Hogan (2008) found that Internet users spend less time engaged in face-to-face interaction with people outside the home. The Internet did not seem to have a significant impact on face-to-face interaction with people living in the home. Nie & Erbring (2000) and Nie & Hillygus (2002) found that Internet use led to intergenerational conflict while Internet use for educational purposes created stronger ties between adolescents and their parents. The purpose of Internet usage and how it is monitored in a household influence whether the Internet is seen as a benefit or a hindrance to maintaining family relationships.

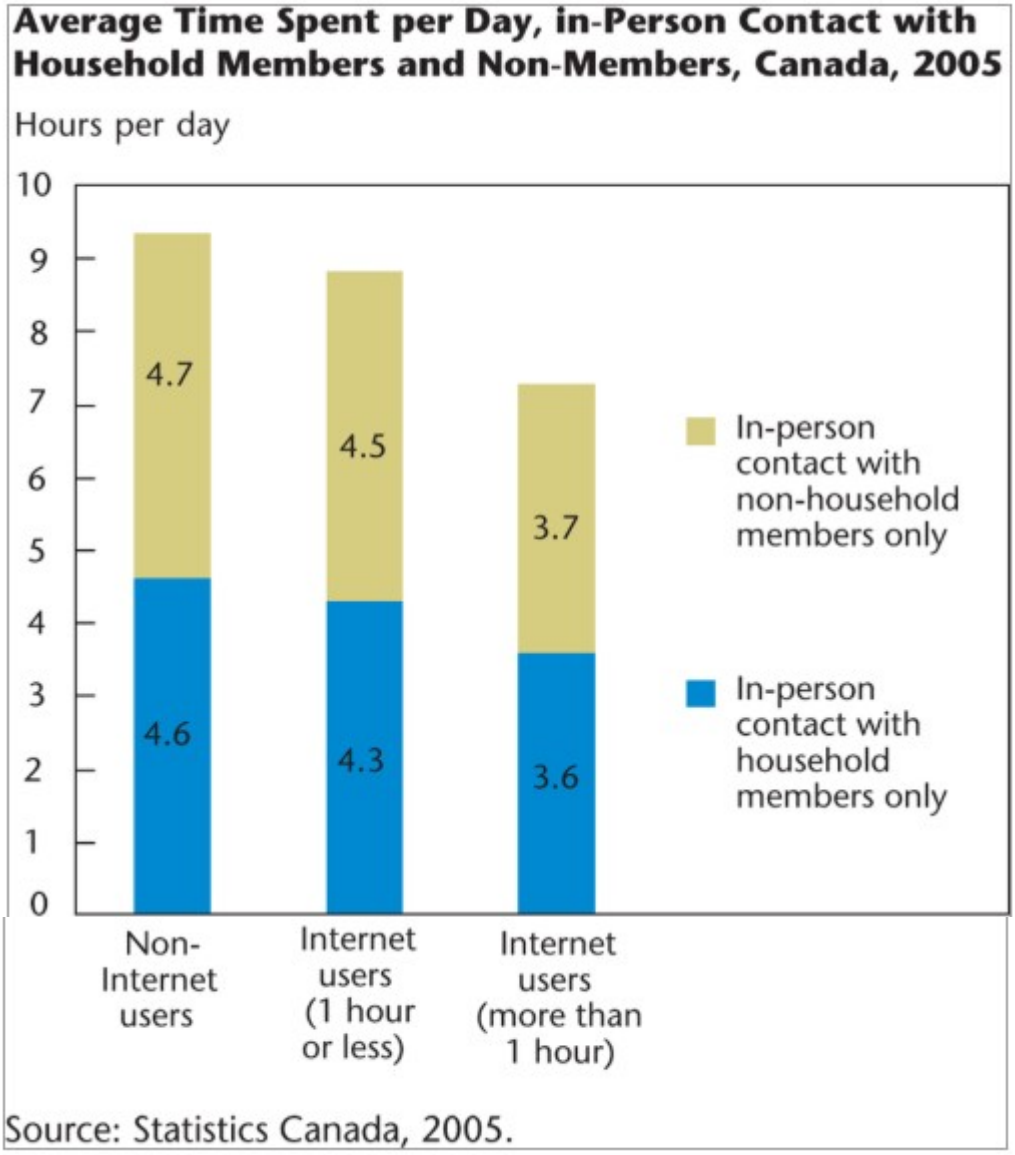


FIGURE 8-13 Does the Internet have an impact on face-to-face family contact time?

The Amish View of Technology

For Amish people, a religious group who often reject technology, cell phones are usable for business or emergencies but are left outside the home as phones are seen as rude to the other member of the family. Televisions are seen as a distraction from family time and are often seen as a corruptive force. So a personal computer with full Internet access in a child's room would, no doubt, be out of the question. In fact most Amish homes don't even have electricity. Amish people spend their evenings with their families bonding over shared activities.

REFLECT AND RESPOND

1. Put your cell phone away. How would your daily activities change? What does this tell you about the proliferation of technology in your life?
2. Describe what a friend is and the criteria to become your friend. Do all of your social media "friends" meet these criteria?
3. How has the Internet changed the way we view the right to download content?
4. Do you believe the Internet has changed the way we think and learn? Explain your answer.
5. When you're at home, who do you talk to more; your friends online or your family members that live in your home?

EVOLVING TECHNOLOGY AND UNIMAGINED OUTCOMES

The evolution of technology creates new opportunities and problems. Networking becomes possible and new resources can be found and traded for mutual benefit. Integration of technology into everyday life becomes part of daily practice and is normalized. Too much of a good thing can be a problem, however. Using technology and networking to excess can cause both health and social problems for people who do not keep their use of technology and other aspects of life in balance.

Jean Baudrillard and Simulated Society

When was the last time you slept outside? As Canadians, we get up in the morning in the bubble that is our home, get into the bubble of our cars or buses, then go to the bubble that is school or work. These bubbles are all designed to protect us from the discomforts of the natural environment. They keep us dry, warm/cool, and keep our technologies safe from breakage or theft. But according to social scientist Jean Baudrillard (1929–2007) they also keep us disconnected from reality.

As humans develop technology we move away from the natural state that we started in. Rain is now an inconvenience rather than valued as something needed to grow food. Wildlife consists of squirrels and raccoons, as all of the large natural predators have been killed or controlled by human forces. Humans now live in "simulations" that they perceive as real. Cities and towns made of concrete and plastic that was not even possible 100 years ago have become normal. But, according to Baudrillard, we have now entered another level of this simulation as we move more of our time onto the Internet to play video games or connect to our online social networks. We now feel close to people who live far away and yet we may not even know our neighbours.

FIGURE 8-14 Is it just the animal that is in a cage?

The Power of Social Networking

One of the challenges in today's society is to realize the social expectation of growing up and getting a house. This expectation is not reasonable for every person. How can this expectation be fulfilled using online media? Canadian blogger Kyle MacDonald bartered his way from a single red paperclip to a house in one year. Kyle was able to achieve his dream of home ownership with the assistance of technology to promote his version of the childhood game of *Bigger and Better*. After 14 transactions in 10 months, Kyle was able to trade for a two-story farmhouse in Kipling, Saskatchewan.

Using social media, he was able to advertise his quest and generate interest among people to participate in his goal. Kyle promised to visit and do a face-to-face trade with the person and told them of his goal to trade up to a house.

Kyle's trading journey started with the red paperclip. He bartered his way along through the following items to get his house.

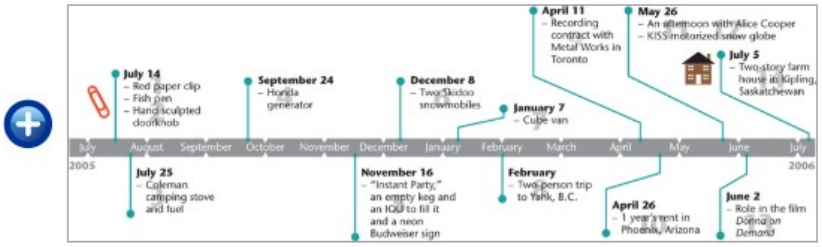


FIGURE 8-15 Kyle MacDonald's red paper clip landed him a house in less than a year. What made his strategy so successful?

Kyle's fame flourished on the Internet and his popularity grew. This new, innovative method to achieve a house caught Canadians and Americans by surprise. Technology was key to networking with potential buyers and sellers of the listed items.

Making a change in Kyle's life took work and dedication. Being focused on a goal, following a timeline, and never giving up are life skills necessary to promote change in a person's life. These transferable skills are a necessary part of the skill-set of any person who plans to be successful and make a change.

Looking at Jean Baudrillard's ideas, how does it relate to Kyle MacDonald's barter experiment?

Technology Use in Canada

Canadians like games. According to the Entertainment Software Association of Canada (ESAC), 48 percent of Canadian households have at least one gaming system such as an X-Box, PlayStation, Wii, etc. (CBC, 2010). This statistic does not include games played on personal computers, tablets, cell phones, or other mobile devices. With access to games and a wide variety of titles on the market ranging from sports to epic adventure, Canadians are spending more of their time playing video games. The majority of gamers are male (64 percent) and the average age of these gamers is 35.8 years old (CBC, 2010). The importance of console games is reflected in the number of hours Canadians spend playing on these platforms each week.

In 2010, 3571 Canadians were polled across all provinces to learn about the time they spend playing console games and the findings were as follows:

Console Games: Hours Played per Week	
Number of Hours Played (Hours/Week)	**Percentage**
Less than 1	11%
1–3	31%
4–6	24%
7–9	9%
10–15	16%
16–20	4%
21+	6%

Source: The Entertainment Software Association of Canada, 2010.

FIGURE 8-16 What can you deduce from this table?

SKILLS FOCUS

Using Figure 8-16, collapse and combine categories and give new headings to help support two different points: the amount of time Canadians play video games *is* a problem or *is not* a problem. Explain your findings.

Virtual Space: The New Frontier

Virtual space and the real world are now coming together in ways not imagined in the past. People can even make a living selling virtual items in games. Anshe Chung was reportedly the first person to make a million dollars selling virtual real estate in the game Second Life.

But there is also a sinister side to the merger of the virtual and real world. The Dutch Supreme Court has found two young men guilty of threatening another youth with a real knife in demand for a mask and an amulet that the victim possessed in a virtual world game. The court agreed that the items were real possessions and the accused were also found guilty of both the assault and theft. In Germany, police are asking if real-world laws on prostitution and sexual crimes extend into virtual space in order to combat cybersex for money.

But as problems arise from the virtual space, benefits are also being noticed. Virtual games serve the function of allowing people to escape the tedium of real life. They allow a person to move into a world where the actual physical form is not a restriction to their actions or abilities. It also allows people to try personas without the threat of permanent consequences. All a person has to do is recreate their character and change its name and no one ever knows their true identity.

Open *for* Debate

Does excessive video game playing lead to the formation of addictive habits or is it a symptom of something else, like depression? Is it the video game playing causing the addictive behaviour or is a person with an addictive personality prone to forming addictive behaviour attracted to video games?

One thing is certain, virtual space is becoming an important place for some people. Social scientists have just started to look at its impacts on real-world cultures and the cultures that are developing online.

Could the virtual world be another layer of the simulation that Jean Baudrillard imagines we all live in?

SOCIAL SCIENCE AND POPULAR CULTURE

Video Games: Shaping Culture?

With the rise in popularity of video games has come an increase in research on how these games impact our society.

One school of thought examines how increased exposure to violent situations leads to the desensitization of violent acts. Through repeat exposure, acts of violence are no longer seen as shocking and violent actions may come to be viewed as being a solution to solve a problem. Social scientists find it difficult to answer the question of whether violent video games cause violent behaviour or if violent people simply seek this type of media. The findings of their studies have a broad application for society. If the games are seen as influencing violent behaviours, then a rating system may be justified or certain games may be banned entirely, particularly for young children. There may also be some culpability for the company for producing content that influences behaviour, especially if the proper warning labels are not present on the packaging.

Video games and violence are only one aspect of video game and technoculture (the interaction between technology and culture) research happening today in Canada. Video games have become a large part of the social landscape. Researchers like Bart Simon (1966–) from Concordia University examine how video technology has integrated itself into daily culture. Video games and the technoculture they promote also raise important questions to be answered by social science researchers.

As video games evolve, so does the research into their influence on society. Traditional surveys and interviews yield important information, but there are two ideas currently being used to capture this new social phenomenon. The first method is a resurrection of an older research method. In the research paper *Two Players: Biography and 'Played Sociality' in EverQuest,* Bart Simon, Kelly Boudreau, and Mark Silverman (2009) research the different forms of commitment to the game EverQuest and how it reverberates through the lives of its players. Biographical research is being used to understand how the players of games experience being online and interact within this community. The strength of this type of research, which is also used in many different disciplines, is that it makes sense of the meanings and practices of the gamers from the gamer's point of view. An individual's interpretation of his or her current situation within the larger structural settings helps to show what a person interprets is happening, which could be independent of the larger trends. Examining the larger trends in society does not provide the detail necessary to show how changes come about as a result of how individuals can influence this change (Simon, Boudreau & Silverman, 2009).

FIGURE 8-17 How have video games changed over time? Why are researchers interested in studying how people use them?

The second way gaming is being researched is through a new method employing new media technology. Bart Simon and his fellow Concordia University researcher Katian Witchger are using YouTube.com as a tool to collect data in ethnographic and auto-ethnographic methods as well as for collaborative analysis, presentation, and dissemination of digital game studies. The idea is to establish new data collection protocols and interview platforms and use posted material as a form of data collection. Gestural gaming is one of the focuses using this type of data collection because the video component allows for visual interpretation of the gaming experience to be captured and saved for analysis later.

QUESTION

1. **What additional sources of information may provide a good understanding of gamers' understanding of online life?**
2. **How has technoculture become part of our popular culture and what value will answering this question provide for society?**

HOW-TO:

Evaluate Data

Evaluating data is an important social science skill. In this experiment, evaluate the time students spend using technology. It is not uncommon for people who use technology for social and/or recreational purposes to report losing track of time and spending more time than intended using their electronic devices. Time is reported as being lost with the constant checking and rechecking of electronic devices for quick text information, like regularly checking a cell phone. What is the importance of these activities to teenagers, and what is the amount of time they spend focusing on technology?

To research this topic, you will need 10 student volunteers (5 male and 5 female). Each volunteer must carry a journal (or journalling device) and log the amount of time they spend using their technology devices daily during a specified period for social and/or recreational purposes.

Steps

1. Create a log for student participants to fill out for three days. Be certain the same three days are used among all participants. (Weekends will show different information because of increased time outside of class time, where cell phone use is not permitted.) Create a key to make recording information easier because there will be a lot of entries.
2. For this experiment, some assumptions will be made. Every time a participant checks his or her messages, the participant should assume that a minimum of 30 seconds was spent doing this. If the participant writes something back, add another 30 seconds to the time, making the total transaction time one minute. This is a conservative estimate, but round numbers will be easiest to use.
3. Once the data has been collected from all 10 participants, tally up the findings. Data can be examined on a day-by-day basis or as an overall number for each electronic device. It is easiest to keep all calculations in minutes. When presenting information, minutes can be converted to hours.

   Cell phone/device: ____ minutes

   Game system: ____ minutes

   Tablet, laptop, or personal computer: ____ minutes
4. When your results are complete, collect the journal findings from three other classmates. In total, there should be data from 20 boys and 20 girls to be analyzed. Pool the data together and create the following graphs: a scatterplot graph for *each* of the different devices and a bar graph showing all the different devices and the average amount of time each device is used.

Interpreting Your Results

There are many different variations that can be applied to this research scenario. As long as the parameters for the variations are defined and properly logged for all research subjects, the findings will be valid. The number of hours spent using each device should be compared to see the cumulative impact of looking at multiple messages during a day, and that result can then be compared to the number of minutes spent on the other electronic devices.

Provide further analysis of the data. With the data collected, look at other interesting trends that are present. Questions you can ask are what, if any, differences occur between the type of electronic devices used by males and females? What was the average usage time for each device? What would the student have been doing if he/she was not using technology?

Taking It One Step Further

Devise three additional questions you could research using the above research information. One example could be to research the need to be connected at all times. Some people, even when in the company of their friends, still use their cell phones. At lunch in a restaurant, play a game of "cell phone stack." Have friends sitting together put their phones in the middle of the table. The first person to use his or her phone from the stack pays the entire bill. This game acts as a social deterrent from using cell phones when in the company of others. A question could be, "How do you stop your friends from using their phones when you are together?" or "When you are with your friends, how much time do you spend on your phone and/or texting?"

When Video Game Addiction Goes Wrong

In extreme cases, video game addiction can have fatal consequences. World of Warcraft (WoW) is an action-adventure game that allows players to network online and form communities. Players create clans and compete for world standings. Friendships form online and the game takes on a new reality for some of its dedicated users. A young girl from Beijing, known by her tag name as Snowly, died after playing WoW for several days non-stop. Virtual communities and clans banded together in a moment of truce to hold an online funeral for Snowly in the WoW world (see Figure 8-18). The gaming platforms were never designed for this type of activity but it took on a new reality as gamers continue to shape the online tools in the vision they want to see, which may be different from the game developer's initial vision or intention for the game. Whether or not WoW or any other video game causes addictive behaviour is still not known, as the relationship is only correlational. The key question that needs to be researched is: Does WoW create addicts or are addicts drawn to WoW to feed their needs?

FIGURE 8-18 What is it about World of Warcraft that makes it so addictive to its players?

Techno Waste

In the past, technological devices were built to last for years. Today, that model does not make sense because the technology used to create new devices becomes outdated rapidly, as companies are always researching how to improve their products and releasing new gadgets approximately every eight to ten months. Computers, cell phones, video game consoles, and other devices become obsolete within a few years of being created. Commercials promote using the newest technology and that upgrading provides an increase in social status.

What happens to the outdated technology, also known as **e-waste**, or electronic waste? The danger of e-waste is that many of these machines may contain mercury, lead, arsenic, and chromium—all of which are toxic to animals and the environment. In 2004, Environment Canada estimated that over 140 000 tonnes of e-waste was being put into landfills each year, a trend that is not likely to reverse any time soon (Statistics Canada, 2006). Canadians will face an environmental mess if electronic devices are not disposed of properly.

e-waste: outdated technology that is often improperly disposed of

For social exchange theorists, every transaction between people goes through a cost–benefit analysis in our heads. If we see a benefit to us, then we will take part in the activity. If we see no benefit, we look for a way around it, or simply do not take part in the transaction. Social exchange theory sees the financial resources needed to keep current with technology as taking precedence over other factors like environmental concerns. It is more important to stay current than to be environmentally friendly.

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FIGURE 8-19 Where is all of the e-waste going to go? Should the makers of the devices be partners in managing this waste?

Canadians must change their behaviours and monitor the consumption of electronics and how these electronics are disposed of. The 2006 Disposal of Household Special Wastes study found that few Canadians monitored the disposal of hazardous waste products like batteries, electronics, medication, and paint. Six in ten respondents disposed of batteries or products with the batteries in them in the regular trash (Statistics Canada, 2008). Promising news for the Canadian environment is that almost half of the surveyed households gave their old computer equipment item away, left it at a drop-off centre, or returned it to a supplier. This positive news is important but the recycling behaviours of the other half of Canadians still need to be addressed to preserve the environment. One way to achieve this would be to have increased access to waste days geared to collecting techno waste, which would decrease the effort needed. Instead of storing items until annual or semi-annual waste pickup days, items could be collected more frequently, avoiding the long-term storage for these items, thereby giving people a greater incentive and benefit to dispose of them properly.

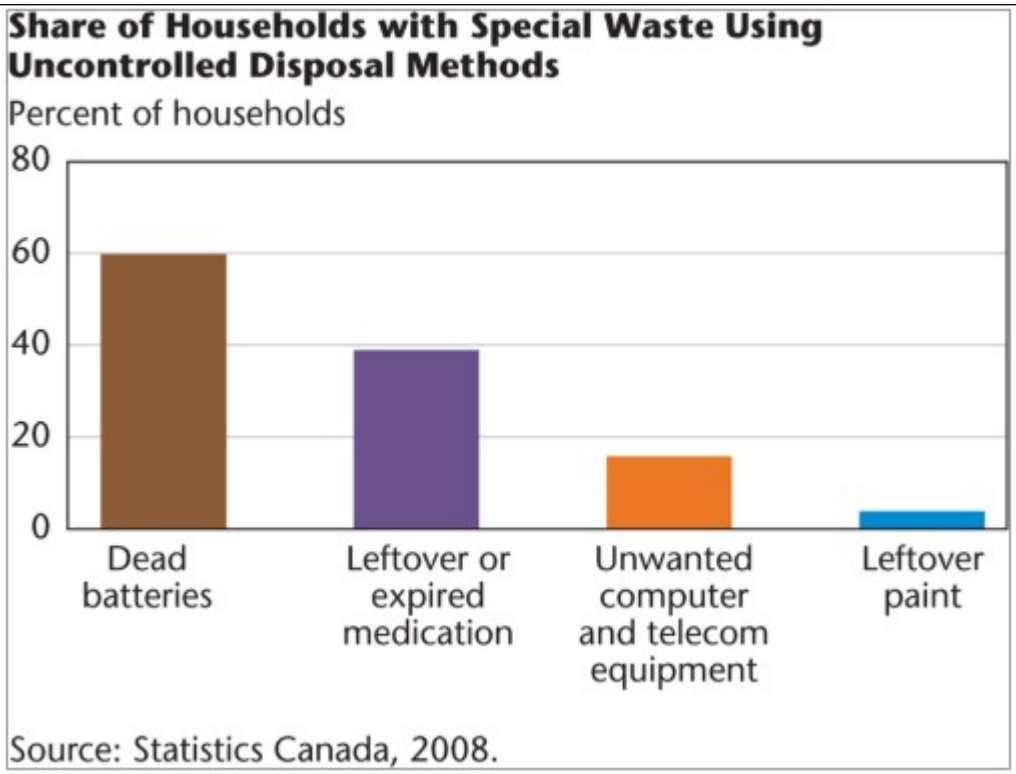

FIGURE 8-20 Why are people more likely to put dead batteries and expired medication in with the regular trash? What can be done to change this?

CHANGE IN ACTION Protecting the Internet

With an increased reliance on the Internet as a tool for socialization, learning, and business, protecting the information it holds and keeping it running smoothly become paramount. What happens if the Internet becomes unsafe or unreliable?

Michael Calce is an ex-hacker turned spokesperson who now promotes a safer Internet through education. To become an elite hacker, a person must do something visible to prove his or her worth to other hackers. In 2000, Montreal resident Michael Calce launched a denial-of-service attack on the Internet, causing chaos and fear in companies and online businesses. He single-handedly shut down the Yahoo, eBay, Amazon, Dell E*Trade, and CNN Web sites and caused millions of dollars in damages. Confidence in companies and in the security of the Internet was tarnished, causing further economic losses. Calce pleaded guilty to 56 charges and served eight months in a group-home facility. The president of the United States of America created a special task force to combat this type of cyber-attack and promised to bring all individuals to justice. Calce was only 15 years old when he brought the Internet to a halt, revealing how vulnerable and unsafe it really is.

From a Marxist perspective this could be seen as an example of the proletariat being able to rise up against the bourgeoisie with simple tools and a good idea. Information is not protected and the ruling class is seen as being vulnerable, something they want to avoid because as long as the proletariat believe the ruling class should be in power, they will stay there. One way to control a person with these abilities is to have Calce work for the very people he took down. Once controlled, his abilities and understanding of computers can be further used to strengthen the control the bourgeoisie has over digital information.

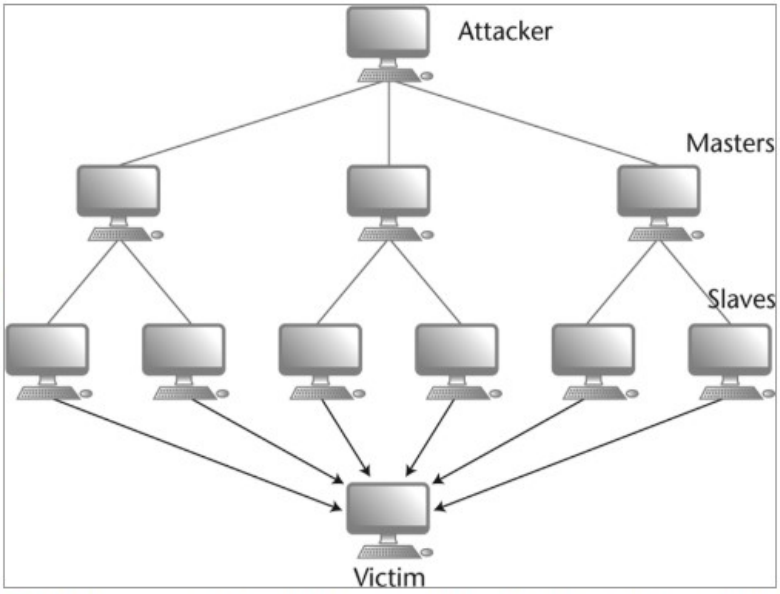

FIGURE 8-21 The anatomy of a denial-of-service attack. Why is this dangerous for Internet users and businesses who use the Internet?

How Can We Protect Ourselves from a Denial-of-Service Attack?

Calce was not aware of the destructive capabilities of the tool he created. Virus security has increased since 2000, but the nature of a denial-of-service attack has not been fixed. A denial-of-service attack is simple to understand: viruses are sent to computers, turning them into "zombies" that will work together to send server requests simultaneously. Working together, the zombie computers bombard a server with requests, overloading its capacity to send and receive information. During a connection between a computer and a server, the user sends a message asking the server to authenticate it. The server returns the authentication to the user. Finally, the user acknowledges this approval and is allowed in to the server. This back-and-forth happens for every computer making a server request. Flooding the server with many requests from the same computers clogs up the server when the authentication never happens because of the new requests. If enough of these requests happen, the server crashes.

The Internet is a valuable but unpredictable resource. From its inception, it was never designed to be a secure means of data transmission. This open-access system allows for ease of entry to obtain and post information. Its weakness is that monitoring and keeping it secure is a monumentus task to undertake. Calce is working to spread his message and warn companies and everyday users about protecting themselves. He uses his insight and understanding of how the Internet works, as well as his first-hand knowledge, to help protect the Internet from another denial-of-service attack that could potentially disrupt the usage of various Web sites. Using his newspaper column in the *Le Journal de Montréal*, he spreads his message. Calce also works with companies to ensure they are protecting themselves online by sharing his knowledge and promoting the importance of keeping virus checkers up to date. Calce is able to provide technical solutions and speak directly to online protection protocols and strategies. His activism targets a specific clientele, but a disruption to one of their Web sites would have an impact on many Internet users. Preventing another crippling mass denial-of-service attack potentially saves companies and governments millions of dollars in damages. Given the degree of reliance on the Internet to transmit personal and sensitive data, Calce's message is all the more important.

QUESTIONS

1. How would not having access to the Internet for a day change your life?
2. After these attacks, how might the role of Internet security change?
3. Why do you think Calce went from causing denial-of-service attacks to educating others about them?

SKILLS FOCUS

Conduct a survey that collects information about the amount of technology waste produced by households in one year. Find the type and number of technology items that each family throws out and then approximate their combined weight. Create a pie chart that shows the proportion of each type of technology item that is thrown out in a year.

REFLECT AND RESPOND

1. Should video games carry the same warnings as cigarettes because of their addictive properties? Explain.
2. When does harmless escapism become an addiction? Compare online socialization to face-to-face socialization.
3. What need in a person's life is fulfilled by playing video games?
4. What are some ways that you could encourage young people to properly dispose of their used batteries and electronic devices?

CHAPTER 8 REVIEW

KNOWLEDGE AND UNDERSTANDING/THINKING

1. Explain how the Internet is being used today by social activists. Provide two examples.
2. List three challenges people who work from home face.
3. What tasks is the Internet used for in everyday life? How does this reliance on technology influence behaviour?
4. How could the Freudian iceberg you learned about in Chapter 3 be linked to the culture of cell phone usage?
5. Explain the role and significance of social networking technology and its importance for this generation of workers entering the job market.
6. What are the similarities and differences between Canada's Bill C-11 and SOPA?

THINKING/COMMUNICATION

7. What can Canadians do to prepare for the global job market and global competition for employment?
8. What strategies can the Canadian Government employ to deal with the increased volume of techno waste? What can we do as consumers to reduce this waste?
9. What is the appeal of video games that keeps gamers playing for hours? Explain the psychological needs that these games meet for some players.
10. Explain how a video game can replace reality. What social science theory would be used to best explain this phenomenon?
11. Compare three different social media sites. Explain the importance of social media sites as a tool for Canadians. What does each site offer that is unique and beneficial to the socialization process of Canadians?
12. Interview one parent about the video games he or she played as a child or young adult. Create a list of ten questions to research what impact video games had on socialization with friends and family. Some questions may include: What impact did video games have on his or her life? How many hours were spent playing these games? Take your findings and compare them to the influence that video games have on your life today. (Even if you or your parent does not play games, conduct the interview and make comparisons showing the similarities and/or differences.)

COMMUNICATION/APPLICATION

13. Interview a person who has immigrated to Canada within the past ten years. Ask the interviewee about how his or her culture has changed since moving to Canada and experiencing Canada's technological culture. Include questions that ask about any cultural changes the person may have made to fit into a technologically integrated aspect of Canadian culture.

14. Assume your personal information has been stolen on the Internet. Make a list of the businesses and/or agencies you would need to contact to change your information and include a list of what you need to change your information.

15. Imagine that you do not have a cell phone. Explain the alternative methods you would use to socialize, including any additional items you would require.

16. How can you protect your personal information? Research what steps you can take to better secure your personal data. Create a pamphlet explaining how to protect your personal information and what resources are available to assist with this process.

17. What would your day be like without technology? Choose a day when you are not at school and try to not use any type of digital device including a computer device, television, digital music player, or cellular phone. Write a journal chronicling your experience without technology. Include details about how it changes how you organize your day and how your socialization changed.

18. Research someone making a difference in your area using social media and/or the Internet. Present your findings and show how the media is being used to promote the message and how this change could be adapted to make a positive difference in your local area.

19. Create a presentation to educate others about how to dispose of e-waste safely and how this change in behaviour can be achieved in your local community.

A Call to Action — Social Media Advocacy

Democracy Watch is a **non-profit organization** that advocates for democratic political reform, government accountability, citizen advocacy, and corporate responsibility. Founded in 1993, this group has successfully lobbied for 110 legal changes to existing Canadian laws (Democracy Watch, 2011). Changes promoted by this group have impacted federal, provincial, and corporate practices, having a positive impact on Canadians. **Transparency** in practices, laws, and procedures is a major focus of this organization. Democracy Watch holds itself and the government to the same standard whereby information should be distributed in a fair and expedited manner to allow all interested parties time to read and participate in government decisions as they unfold. Another function of Democracy Watch is to bring together interested parties on a particular political reform issue.

- **non-profit organization:** an organization whose goal it is to help a particular group or provide a service; shareholders do not benefit financially from revenues
- **transparency:** clarity in the actions of a corporation or government, such as through providing annual reports and allowing public access to them

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To complete their work, Democracy Watch requires technology and all its advantages to change the Canadian political landscape. Embracing social media provides a means to participate in the Canadian political process. Social media allows for a large amount of information to be made available at almost no cost. Information can be posted, sent through an email notification system, and read within moments of being posted. This political advocacy group utilizes Twitter, Facebook, and YouTube to help get its messages out and to organize its supporters. Democracy Watch promotes accountability, with an emphasis on input from the people the laws represent. One successful campaign focused on having Canadian banks disclose in clear and plain language what the cost is to borrow when using a credit card. The regulations came into effect in September 2010.

FIGURE 8-22 Democracy Watch promotes accountability in Canadian politics. Who is protecting Canadians' democratic rights and freedoms?

Protecting Whistleblowers

Obtaining information is necessary to build cases. What happens to the people who provide the information? Potentially, the people being honest and giving information could be fired from their jobs or incriminated as an accessory to the illegal actions. To protect these people, called whistleblowers, Democracy Watch has successfully lobbied for protection measures for people providing information under the Public Servants Disclosure Protection Act (PSDPA) created in 2007 (Hutton, 2012). Under this legislation, the PSDPA has in place a whistleblower protection system with a designated senior official and effective channels for internal reporting of suspected wrongdoing. Having a system check up on itself is important for both accountability as well as protection for people protecting the existing social and legal structures created to make a fair Canadian society.

Experiencing Canadian Politics and Being Part of an Advocacy Group

It is important to be part of the political process and to have a voice. All levels of government and industry should be accountable for their actions because the direct impact falls upon Canadian citizens.

Social media provides an inexpensive and broad-reaching opportunity to influence a potential audience. Messages can be read or heard and transmitted at the click of a mouse. Whether creating groups using social networks or making a video to explain your position, it is important to spread a message in digital format to maximize its impact. It also allows for the message to be transmitted to a multitude of smart devices.

When making a video, the goal of an advocacy group is to have it viewed by as many people as possible, especially by those with influence. “Going viral” requires something that will catch the attention of net surfers. Creating a parody of a popular advertisement is one way to make a video go viral. The power of fame should not be underestimated. Using the “star power” of a famous person to promote a cause can be helpful as the celebrity will recruit his or her fans to help to spread the message.

Advocacy efforts also have to reach those in power who can make change happen. Public officials or private company entities are moving toward a model where they are in closer contact with their constituents or customers. The idea is that being too far removed from the people has impeded the ability for a company or government to meet the needs of the people. People also feel better when they can contact and communicate their ideas to someone who can effect change. For example, following the tweets of a government official allows the advocate a unique understanding of the concerns of the office on a specific topic. This information can be used to better position your request, which increases the chance that it will be read and taken seriously. Also, having a direct link to a person (or group) that can effect change empowers an advocate to make change because of the feeling that someone is listening.

The Challenge

In small groups, choose a current Canadian issue that interests everyone. You can log on to the Democracy Watch Twitter and Facebook accounts and navigate to the issue that interests the group or research other organizations concerned with your issue.

Read about the current state of your issue and research current campaigns lobbying for change. You may want to review any relevant videos posted online or any print campaigns.

Consider the following questions:

- What aspect of your issue needs the most attention?
- Why is your issue important?
- Why is change necessary?
- What can people do to create change?
- What is the most effective way to draw attention to your issue (i.e., social networking page, Twitter, Web site, videos, email campaign, online petition)?

Your Task

Using social media, create an advocacy campaign that explains and highlights the importance of your issue. Present your issue to the class, including why this change is necessary and your group's views. Next, present your social media plan, which can include prototypes of your Web site, storyboard for your video, or a draft of your email campaign, depending on which advocacy strategy you selected. Collect feedback from your peers and include their suggestions in your final product.