

Chapter 06

IMPACTS OF COMPUTING



After completing this lesson, you will be able to:

- understand and apply safe and responsible use of information sources, identifying sources of reliable information compared to unreliable information and its sources
- define and discuss how computing has increased connectivity by enabling communication between people and the environmental, cultural, and human impact of increased connectivity



UNIT INTRODUCTION

In our daily lives, when we need information to make decisions, learn new things, or do research, we get that info from different places like books, websites, or databases. These sources are super important because they help us understand things, analyze stuff, and solve problems in different areas like work or school. There are different types of information sources, each with its own job and unique features.

6.1 Information

In the context of computers, "information" refers to data that has been meaningfully organized, processed, or formatted to communicate knowledge, facts, or insights to a user or a system. It is the end result of processing raw data through various activities including computing, analysis, or transformation. Raw data is transformed or processed into information through a number of activities. Calculations, sorting, filtering, and other processes that provide the data context and meaning might be a part of this processing. It is frequently easier to retrieve, evaluate, and present information when it is organized in a planned style.

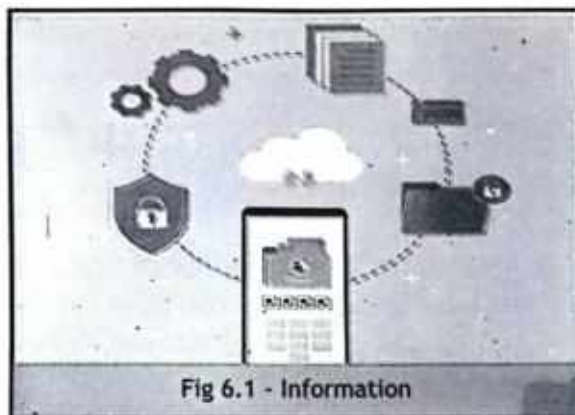


Fig 6.1 - Information

Text, numbers, photos, audio, and video are just a few of the different formats that information can take. Additionally, depending on the domain and the intended purpose, it might be arranged in many ways.

6.2 Information Sources

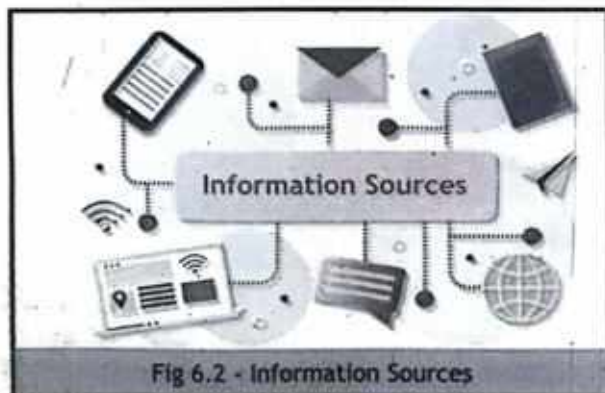


Fig 6.2 - Information Sources

The modern information environment is not complete without information sources, which act as repositories of knowledge and data that people and businesses rely on to make choices, conduct research, stay current, and solve issues. These sources can be roughly divided into three categories: primary, secondary, and tertiary sources, each of which contributes differently to the gathering and sharing of knowledge.

Primary Sources

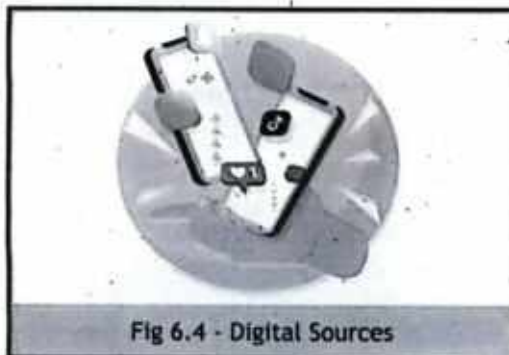
Primary sources are the authentic, undisturbed documents or artifacts that offer first-hand knowledge of an event, issue, or subject. Examples of primary sources are letters, diaries, photographs, surveys, raw data etc.

Secondary Sources

Secondary sources are created by individuals or organizations who analyze, interpret, or summarize primary sources. Examples of secondary sources include books, academic articles, documentaries, and news reports. Secondary sources are frequently used by researchers to get specialized information or to gain a deeper understanding of a topic.

Tertiary Sources

Secondary and primary sources are combined and gather in tertiary sources, which are used to provide information. They are useful for quick reference and overall knowledge because they are created to provide a thorough overview of a specific topic. Examples of tertiary sources are encyclopedias, dictionaries, handbooks, and textbooks.



Digital Sources

In today's digital age, information sources are increasingly found in digital formats, accessible through the internet. Examples of digital sources are websites, online databases, social media, blogs, and multimedia content. Digital sources offer real-time updates but they also require critical evaluation for credibility and reliability.

Print Sources

Print sources of information often provide in-depth analysis, historical context, and a tangible medium for reading and research. Examples of print sources are books, newspapers, magazines, and journals.

Human Sources

Information can also be sourced directly from people, either through personal communication or expert consultation. Examples of human sources experts, mentors, colleagues, and community members.

Electronic Sources

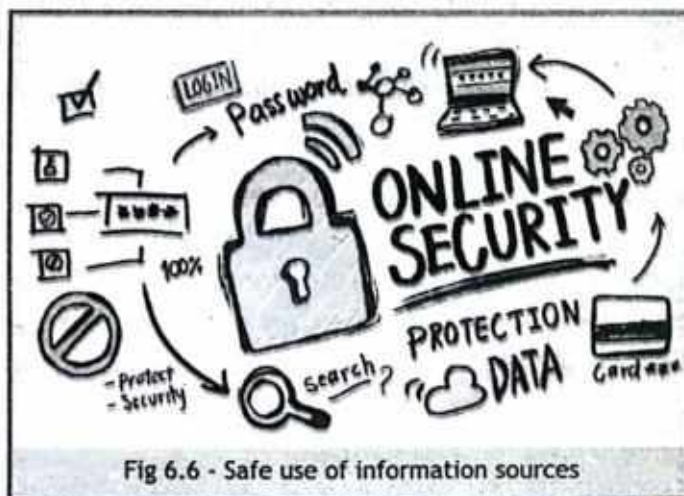
Electronic sources refers to information, data, or content that is stored and accessed in digital form, typically through electronic devices such as computers, smartphones, or tablets. Examples of electronic sources are online databases, websites, e-books, digital journals, audiovisual materials etc.



6.3 Safe Use of Information Sources

Understanding and applying safe and responsible use of information sources is essential in today's digital age, where information is easily accessible but not always reliable. Whether you're conducting research, using information for decision-making, or simply consuming content online, here are some key principles to follow.

In today's digital age, where information is freely accessible but not always reliable, understanding and putting into practice safe and ethical use of information sources is crucial. Here are some important guidelines to remember when utilizing the internet for research, making decisions, or just reading content:



Evaluate the Source's Credibility

Check the source's reputation and authority in the field. Are they known for accurate, unbiased reporting? Consider the author's qualifications and expertise on the subject. Be cautious of sources that lack transparency about their authors or affiliations.

Beware of Bias and Misinformation

Recognize that all sources may have some degree of bias. Be aware of the difference between factual information and opinions or editorials. Be skeptical of information that seems too good (or bad) to be true.

Respect Copyright and Intellectual Property

When using information for your own work or research, be sure to properly attribute and cite your sources. Understand the principles of fair use and copyright laws in your jurisdiction.

Avoid Plagiarism

Always credit the original author when quoting or paraphrasing their work. Learn how to properly cite sources in the appropriate citation style (e.g. APA).

Report False Information

If you come across false or harmful information, report it to the platform or authorities if necessary. Encourage responsible information sharing within your online and offline communities.

6.4 Bias in Data

Imagine data bias as mistakes or problems in information that can make the conclusions we draw from it not quite right. It happens when there are errors or unfairness in the data, like not picking a fair group of examples or making mistakes when collecting information. This can lead to wrong or unfair results when we use the data. Data bias is a big deal in things like computers learning and decision-making, because if the data is not fair, the computer might make unfair decisions. To fix this, we need to find and fix these mistakes in the data and make sure we have a good mix of different examples. This way, we can make sure our results are fair and accurate.

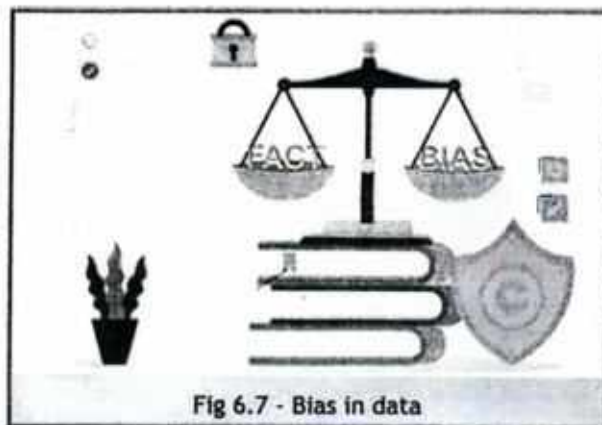


Fig 6.7 - Bias in data

6.4.1 Human bias in data collection

Imagine human bias in data collection as mistakes or problems in the information we gather. It happens when people involved in collecting data let their own views or beliefs affect the process, making the data not completely accurate. This bias can happen at different times, like when deciding how to collect data, choosing who to include, actually gathering the data, and interpreting the results.

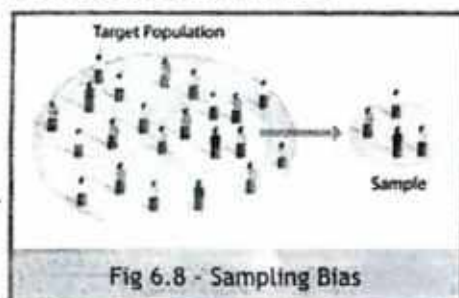


Fig 6.8 - Sampling Bias

Sampling Bias

One of the most common forms of bias is sampling bias. This occurs when the sample used for data collection does not accurately represent the entire population. For example, if a survey is conducted only in urban areas, it may not capture the perspectives of rural populations, leading to a biased dataset.

Selection Bias

This bias occurs when certain individuals or groups are systematically excluded from the data collection process. It may be intentional or unintentional and can result from factors such as accessibility or researcher preferences and it might even be unplanned. For example, if a company is conducting interviews for a new position. If the interviewers only select candidates from a specific university because they believe it produces the best graduates, they may inadvertently introduce selection bias.

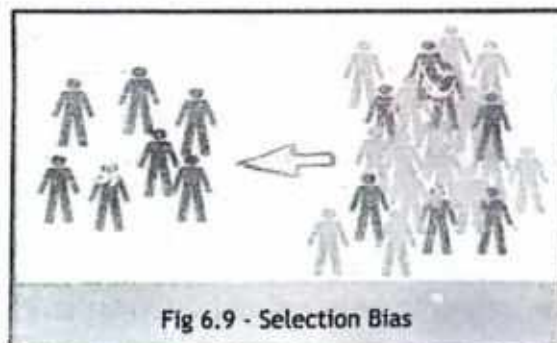


Fig 6.9 - Selection Bias

Observer Bias

Observer bias, or experimenter bias, happens when the person observing an event or collecting data is influenced by their own beliefs or expectations, which can affect how they interpret or record information. Imagine a scientist conducting a study on a new medicine. If the researcher already believes that the medicine will be very effective, they might unintentionally analyze the results in a way that aligns with their preconceived notion. This can lead to biased and inaccurate conclusions about the medicine's actual effectiveness, as the researcher's expectations influenced their interpretation of the data."



Fig 6.10 - Observer Bias

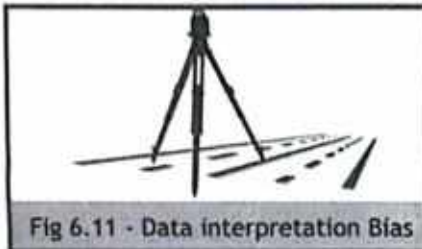


Fig 6.11 - Data interpretation Bias

Data Interpretation Bias

Data interpretation bias refers to the tendency of individuals to interpret information in a way that aligns with their pre-existing beliefs, expectations, or preferences, rather than objectively analyzing the data. This bias can lead to a distorted understanding of information and may impact decision-making.

6.5 Reliable Information

Reliable information refers to data, facts, or knowledge that can be trusted and depended upon for accuracy and credibility. It is typically obtained through reputable sources, rigorous research, or established methods of verification. Reliable information is free from bias, distortion, or manipulation and is supported by evidence that has undergone scrutiny and validation.

6.5.1 Sources of reliable information

Identifying sources of reliable information involves a critical assessment of the credibility, authority, and transparency of the sources. Look for well-established institutions, such as government agencies, universities, and reputable research organizations, as they often produce reliable data and research. Peer-reviewed academic journals and books by recognized experts in the field are excellent sources. Also, consider websites with domain extensions like .gov, .edu, or .org, as they often belong to government, educational, or nonprofit organizations known for providing accurate information.

Academic Institutions and Peer-Reviewed publications

For scientific or academic information, peer-reviewed journals and articles from respected academic institutions are generally reliable. These sources go through a *rigorous review process* by experts in the field.

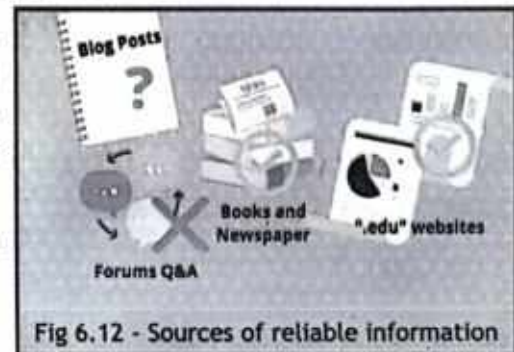


Fig 6.12 - Sources of reliable information

Government Websites:

Government websites, such as those ending in .gov is often provide accurate and up-to-date information on a wide range of topics. These sources are usually vetted and authoritative.

Educational Institutions (.edu)

Websites with ".edu" in their domain name are associated with educational institutions like universities and colleges. These websites are typically reliable sources of information because they are affiliated with academic organizations. The ".edu" domain indicates that the website belongs to an educational institution, and it is often used for official and trustworthy content related to research, education, and other academic pursuits. So, when you see a website with ".edu" in the URL, you can usually trust the information it provides.

Databases at the library

For information on academic and research topics, use library resources like JSTOR, PubMed, or Google Scholar. These resources are available for free in many libraries.

Cross-check Information

Compare information from multiple sources. If multiple reputable sources are reporting the same information, it is more likely to be reliable.

Do not use social media as your primary source

Be cautious when using social media as a primary source of information. Information can spread quickly on these platforms, but it may not always be accurate.

6.6 Sources of Unreliable Information

Unreliable information means that the information you have might not be trustworthy or accurate. It is like getting advice from someone who often makes mistakes or telling stories that are not true. When information is unreliable, you cannot always rely on it to be right, so it is essential to be cautious and double-check things before believing or using that information to make decisions.

6.6.1 Sources of unreliable information

Unreliable information can come from various sources. First, social media and websites that lack fact-checking may spread rumors, fake news, and unverified claims. Second, biased or sensationalist news outlets can distort facts to fit their agenda. Third, anonymous sources or user-generated content often lack credibility, as their accuracy cannot be verified. Fourth, outdated or incomplete information can mislead when the context has changed. Lastly,

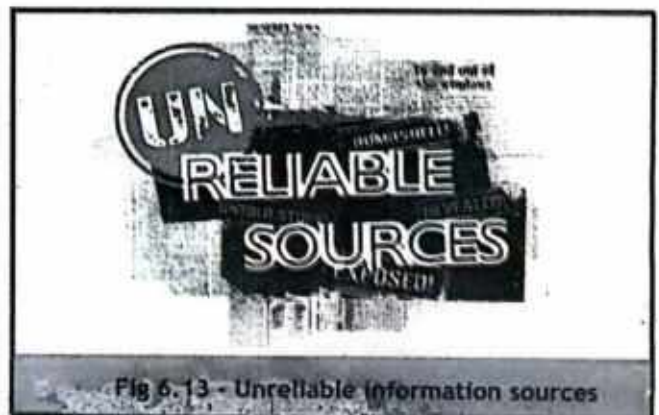


Fig 6.13 - Unreliable information sources

personal anecdotes, while valuable, may not represent broader truths. To navigate unreliable information, it is essential to cross-check facts, rely on reputable sources, and be critical of content lacking evidence or transparency.

6.7 Data Searches

Searching for data is like going on a treasure hunt on the computer. Think of it as having a big box full of different things, and you were trying to find one special thing, like your favorite toy. To do this, you look through the box, one thing at a time, until you find what you want. Similarly, when you search for data, you were going through a huge pile of information on the internet or in a computer to find exactly what you need. You use special tools called search engines, like Google, to help you find that specific piece of information or answer to your question among all the stuff online. It is like a digital scavenger hunt where you use keywords and filters to discover the hidden treasures of information you were looking for.



Fig 6.14 - Data Searches

6.8 Data Source Verification Tasks Suitable for Humans

Data source verification tasks can vary widely in terms of complexity and the suitability of humans versus computing devices for completing them. The choice between humans and computing devices depends on factors such as the task's nature, accuracy requirements, speed, and the availability of resources. Here is a breakdown of the differences between tasks that should be completed by humans and those that are ideally completed by computing devices.

6.8.1 Tasks Suitable for Humans

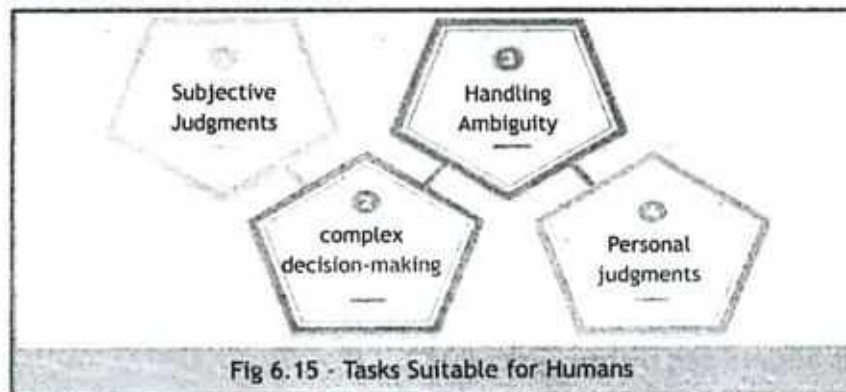


Fig 6.15 - Tasks Suitable for Humans

Subjective Judgments

Tasks that involve subjective judgment and interpretation are often better suited for humans. For example, determining the sentiment of a piece of text or assessing the credibility of a news source may require human judgment.

Complex Decision-Making

Tasks that require complex decision-making based on a deep understanding of context, ethics, and social norms are typically handled better by humans. For example making decisions about content moderation on a social media platform often requires considering a range of cultural and ethical factors.

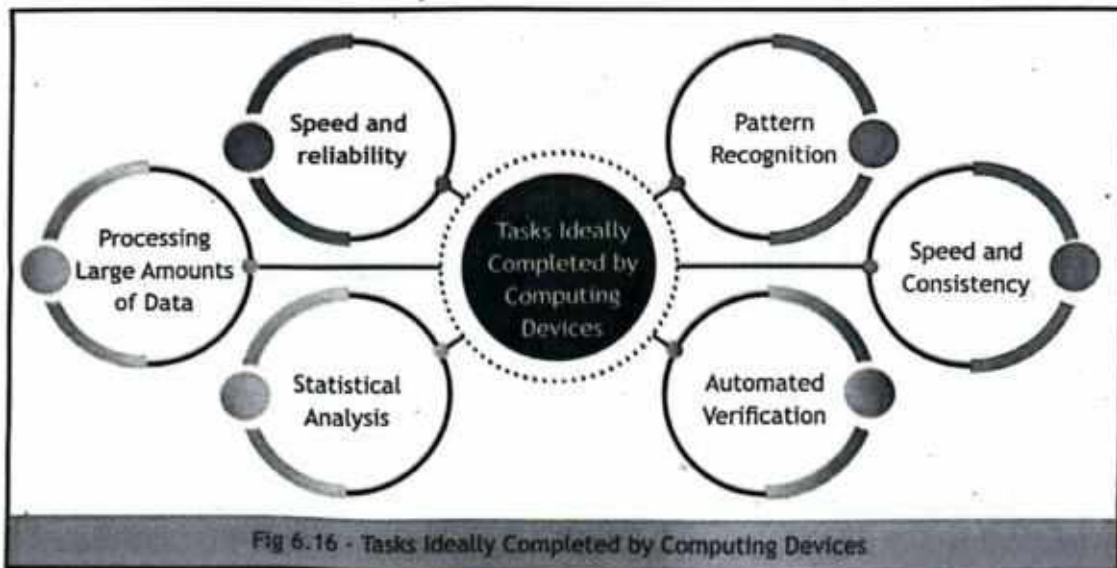
Handling Ambiguity

Humans are capable of adapting and making decisions based on their knowledge and common sense when the data or task requirements are unclear.

Personal judgments

Humans are frequently better equipped for tasks involving arbitrary judgment, interpretation, or nuance. For instance, human judgment may be necessary to determine the tone of a text or judge the reliability of a news source.

6.8.2 Tasks Suitable for Computer



Speed and reliability

Computers can handle data far more quickly and with constant accuracy, which makes them the best choice for activities requiring frequent and repetitive calculations.

Processing Large Amounts of Data

Handling large volumes of data quickly and accurately is a strength of computing devices. They can perform tasks like sorting, filtering, and aggregating data at scale.

Statistical Analysis

Computing devices are well-suited for performing complex statistical analyses, regression modeling, and other data-driven calculations.

Pattern Recognition

Tasks that involve pattern recognition, such as identifying anomalies in data or detecting trends, can be efficiently handled by machine learning algorithms.

Speed and Consistency

Computing devices can process data much faster and with consistent precision, making them ideal for tasks that require rapid and repetitive calculations.

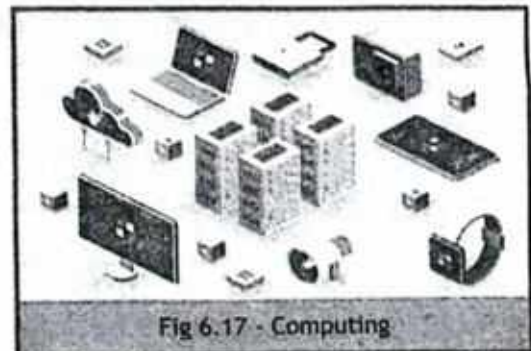
Automated Verification

Tasks like verifying data against predefined rules or performing data quality checks can be automated using computing devices.

In many cases, a combination of both humans and computing devices may be the most effective approach. Humans can provide expertise, judgment, and oversight, while computing devices can handle repetitive and data-intensive tasks efficiently. The choice ultimately depends on the specific requirements and constraints of the task at hand.

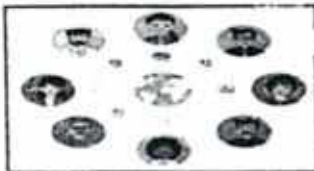
6.9 Computing

Computing refers to the process of using computers and computational systems to perform various tasks, solve problems, manipulate data, and process information. It encompasses a wide range of activities and technologies related to the use of computers and digital devices, including hardware, software, algorithms, and data.



6.9.1 Connectivity is improved by computing

Computing has played a significant role in increasing connectivity in various ways, transforming the way people, devices, and systems communicate and interact. Connectivity is significantly enhanced through the integration of computing technologies. This improvement is driven by several factors, including the ability to process and analyze large volumes of data in real-time, enabling more efficient communication and decision-making.



Internet and Networking

The internet has made it easier for people all over the world to connect and share information. Thanks to computer networks like the World Wide Web, email, and instant messaging, we can now communicate in real-time. This means that individuals, organizations, and governments

globally are linked together through the internet."

Mobile Technology

With the use of smartphones and tablets, we can now effortlessly stay in contact while we are

away from each other. These devices have strong computers inside them that allow us to do cool stuff like talking to each other using voice and video calls, chatting on social media, checking emails, and surfing the internet. It's like having a mini-computer in our pocket! This makes it super easy for us to stay in touch with friends and family and manage work stuff too.

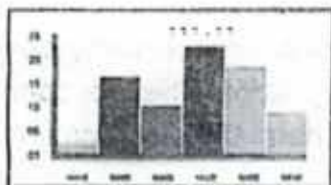
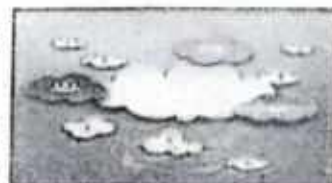


Sociable Media

Social networking websites like Facebook, Twitter, Instagram, and LinkedIn were made possible by computing, revolutionizing the way people communicate and exchange information. These platforms allow users to stay in touch with their friends, family, and coworkers as well as forge new relationships with individuals who have similar interests or occupations.

Cloud Computing

Cloud computing has made it possible for individuals, businesses, and organizations to remotely access and store data, apps, and services, fostering connectedness and cooperation. It enables project collaboration, real-time document sharing, and data access from many platforms and places.



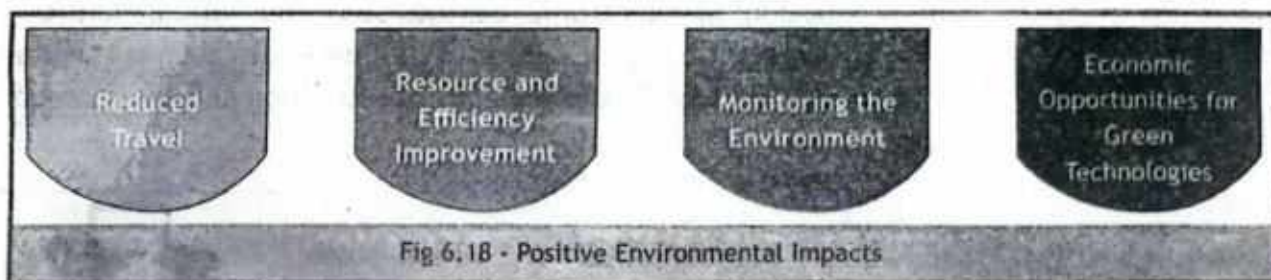
Big Data and Analytics

Computing power has made it possible to collect, process, and analyze vast amounts of data. This data-driven approach has improved decision-making, enhanced personalization, and fostered connectivity between organizations and their customers.

6.10 Impact of Increased Connectivity on the Environment

Increased connectivity, particularly in the context of the digital age and the Internet, can have both positive and negative environmental impacts. These impacts can vary depending on the specific technologies, infrastructure, and usage patterns involved.

6.10.1 Positive Environmental Impacts



Reduced Travel

Increased connectivity can facilitate remote work and online meetings, reducing the need for commuting and business travel. This can lead to lower carbon emissions from transportation.

Resource and Efficiency Improvement

The Internet of Things (IoT) and other technologies that rely on connectivity can improve resource management by enabling for more effective use of resources like water, electricity, and other resources.

Monitoring the Environment

Enhanced connectivity can enable real-time environmental monitoring, helping to detect and respond to environmental issues such as pollution, deforestation, and natural disasters more effectively.

Economic Opportunities for Green Technologies

Green technologies, such as smart grids and renewable energy systems, can have a positive impact on the environment, and connectivity can open up prospects for their development and implementation etc.

6.10.2 Harmful Environmental Effects



E-waste

The proliferation of electronic devices and constant connectivity can lead to increased electronic waste (e-waste) generation. The improper disposal and recycling of electronic devices can harm the environment and human health.

Energy Consumption

Data centers and the infrastructure required for connectivity consume significant amounts of energy. The energy sources used for this infrastructure can have varying environmental impacts, depending on whether they rely on fossil fuels or renewable energy.



Resource Extraction

The production of electronic devices and the infrastructure for connectivity requires the extraction of raw materials, such as rare earth metals, which can contribute to habitat destruction and environmental degradation.

Digital Divide

Increased connectivity can worsen the digital divide, where some communities have access to technology and the benefits it brings, while others do not. This can result in uneven resource distribution and environmental impacts.



Privacy Issues

Connectivity often involves the collection and storage of vast amounts of data, raising privacy concerns. Data breaches and misuse of personal information can have social and environmental implications.



6.11 The Effects of Connectivity on Culture

The cultural impact of increased connectivity, brought about by advancements in technology and the internet, is really big and spreads far. It has made a global village where people from different cultures can easily connect, share ideas, and learn from each other. This has led to a rich exchange of cultural practices, customs, and traditions, making people more aware and understanding of different cultures. However, some worry that it might make all cultures the same as global trends and influences spread quickly. In this connected world, people have the chance to explore and accept different perspectives, but they also have to deal with the challenge of keeping their own cultural identities in the midst of this global mixing.

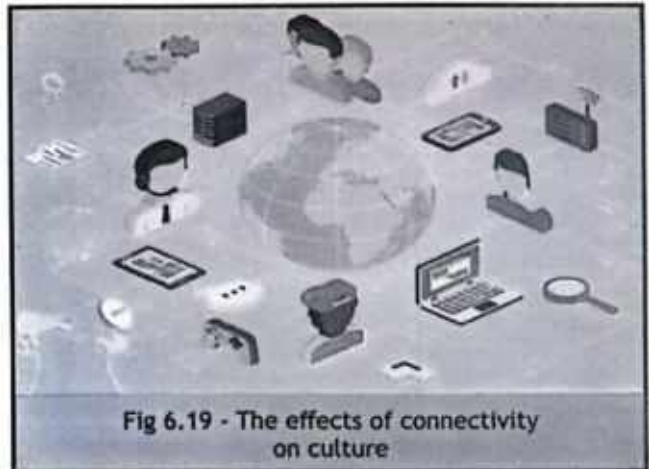


Fig 6.19 - The effects of connectivity on culture

6.12 Effects of Increased Connectivity on People

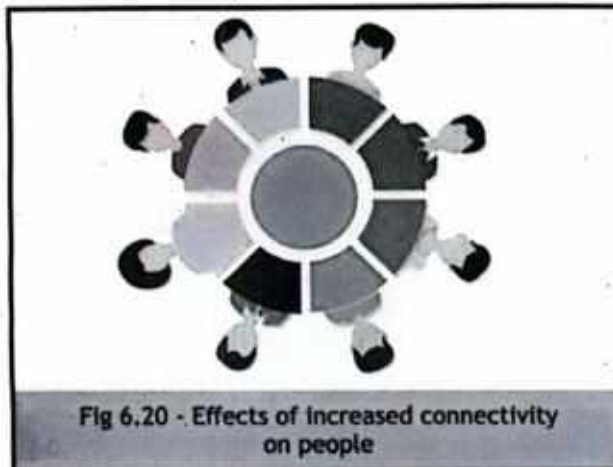


Fig 6.20 - Effects of Increased connectivity on people

People have experienced both positive and negative effects from increased connectedness, such as that provided by the internet and cellphones. On the plus side, it has made it simpler for us to communicate with family and friends, get information fast, and interact with people around the world. Furthermore, it has created new chances for online education and work.

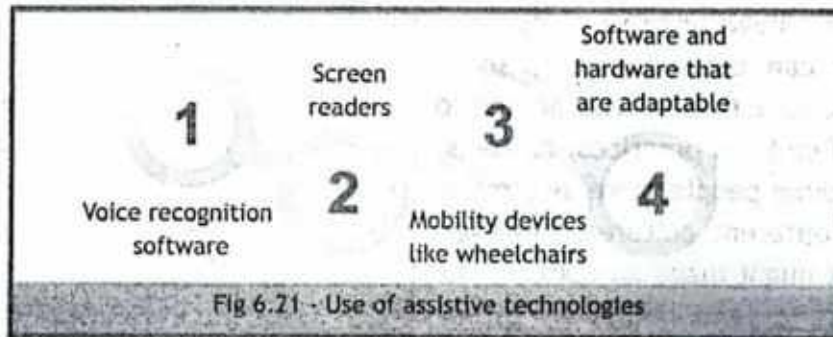
The possibility for screen and social media addiction, privacy issues, and the dissemination of false information are some of the drawbacks of greater connection. To maximize the advantages

while limiting the disadvantages of this increasing connectedness, it can be helpful to maintain a balance and use technology with awareness.

6.13 Assistive Technologies

Assistive technologies (AT) refer to a wide range of tools, devices, software, or equipment designed to help individuals with disabilities or functional limitations perform tasks they might otherwise have difficulty with. The primary goal of assistive technologies is to enhance the independence, functionality, and quality of life for people with disabilities by addressing barriers they may encounter in daily activities. These technologies can span various domains, including communication, mobility, education, employment, and daily living.

6.13.1 Use of assistive technologies



Voice recognition software

Software that recognizes speech commands and enables voice control of computers and other devices for people with physical disabilities.



Screen readers

Text-reading software also called screen reader software are available for people with visual impairments. These are Software that reads text out loud to people who are blind.

Mobility devices like wheelchairs

Mobility devices and equipment to help people with mobility issues are available. Devices that make it easier for those with mobility issues to go around on their own.



Software and hardware that are adaptable

Adaptive equipments are available for those with physical limitations. Some examples of adaptive equipment's are modified keyboards, switches, or joystick controllers etc.

6.14 Digital Divide

The digital divide refers to the gap between those who have access to digital technologies and the internet and those who do not. This divide can have a significant impact on connectivity and how accessibility to information affects the lives of different people. It refers to the gap or disparity in access to and use of digital technologies and the internet between different groups of people or

communities. This divide can be based on various factors, including income, location, age, education, and socio-economic status. The digital divide has significant implications for individuals, communities, and societies, as it can intensify existing inequalities and limit opportunities for those on the wrong side of the divide.

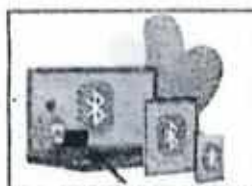


6.15 Technological Innovations

Various technological innovations have significantly enhanced communication between people, including the widespread use of Wi-Fi networks, which provide high-speed internet access for seamless online connectivity. Bluetooth technology enables wireless data exchange between devices over short distances, facilitating effortless sharing and interaction. Additionally, advancements in mobile communication, such as 5G networks, have revolutionized real-time communication, offering faster data speeds and reduced latency, thus promoting more efficient and reliable connections among individuals, regardless of their physical location. These innovations collectively empower individuals to communicate and collaborate more effectively in today's interconnected world.

Wi-Fi Networks

Wi-Fi (Wireless Fidelity) technology allows for wireless data transmission over short distances. It has revolutionized how we connect to the internet and communicate with others. Wi-Fi is used in homes, offices, public spaces, and even on mobile devices, enabling fast and convenient internet access.



Bluetooth

Bluetooth is a wireless technology standard that facilitates short-range communication between devices, such as smartphones, tablets, headphones, and speakers. It's commonly used for connecting peripherals and sharing data without the need for cables.

3G, 4G, and 5G Networks

Fourth-generation (4G) and fifth-generation (5G) cellular networks have significantly improved mobile communication. These networks offer faster data speeds, lower latency, and increased capacity, enabling high-quality video calls, mobile internet browsing, and IoT (Internet of Things) connectivity.



Smartphones

Modern smartphones combine various communication technologies, including cellular, Wi-Fi, Bluetooth, and VoIP. They are essential devices for voice calls, text messaging, and internet access.

Summary

- **Responsible and safe use of information sources:** This relates to using knowledge responsibly and ethically while avoiding damaging or unethical behavior.
- **Identifying Sources of Reliable Information:** The capacity to distinguish and recognize reliable information sources that offer correct and credible facts is known as "identifying sources of reliable information."
- **Identifying Unreliable Information Sources:** The ability to spot unreliable information sources, frequently as a result of a lack of credibility, accuracy, or prejudice.
- **Recognizing Unreliable Information Sources:** Identifying Reliable and Unreliable Information Sources recognizing the origins and traits of information sources that routinely deliver biased or incorrect information.
- **Responsible Information Consumption:** Using information responsibly consuming information critically and responsibly, which entails checking facts before accepting them as true and preventing the spread of inaccurate or harmful information.
- **Ethics in Information Use:** Observing moral guidelines when utilizing and sharing information, making sure that one's deeds are in line with ideals of honesty, integrity, and justice.
- **Computing:** Computer technology, including both hardware and software, are used in computing to process and manipulate data, carry out calculations, and address issues.
- **Connectivity:** The ability of various devices, networks, or people to communicate and exchange data with one another is referred to as connectivity.
- **Communication:** The exchange of information, concepts, or messages via verbal or written language, electronic media, or signals between people, objects, or systems is referred to as communication.
- **Environmental Impact:** When we talk about environmental impact, we are talking about the potential negative consequences that increased connectedness through computing may have on the environment. This includes things like energy use, electronic trash, and the carbon footprint of digital technologies.
- **Cultural Impact:** Cultural impact refers to how improved connection can affect and modify cultural behaviors, beliefs, values, and traditions, frequently as a result of the cross-cultural exchange of ideas and information that computers facilitates.
- **Human Impact:** Human impact refers to the effects that more computing connectivity may have on social interactions, working habits, information access, and general well-being.
- **The APA (American Psychological Association) citation style** is a set of rules and guidelines for documenting and citing sources in academic writing, especially in the fields of psychology, education, and the social sciences.



Exercise

Select the best answer for the following Multiple-Choice Questions (MCQs).

1. What is the primary objective of understanding and applying safe and responsible use of information sources?
 - a) To collect as much information as possible
 - b) To differentiate between reliable and unreliable sources
 - c) To share information with others
 - d) To store information securely
2. What is one of the key points of the text regarding information sources?
 - a) They are always 100% reliable
 - b) They can be either reliable or unreliable
 - c) They are all equally trustworthy
 - d) They are only found in books
3. Which of the following is NOT a part of safe and responsible use of information sources?
 - a) Identifying reliable sources
 - b) Sharing information without verification
 - c) Applying critical thinking skills
 - d) Understanding the sources of information
4. What is the importance of identifying reliable information sources?
 - a) It helps in hoarding information
 - b) It prevents access to information
 - c) It ensures the accuracy and credibility of information
 - d) It promotes the use of unreliable sources
5. How can one differentiate between reliable and unreliable information sources?
 - a) By choosing sources randomly
 - b) By evaluating the credibility and trustworthiness of sources
 - c) By using information sources without any evaluation
 - d) By avoiding all information sources
6. Which of the following is a key aspect of responsible information use?
 - a) Sharing information without verifying its accuracy
 - b) Citing sources when using information
 - c) Keeping all information sources secret
 - d) Ignoring the source of information
7. What is meant by "applying safe and responsible use of information sources"?
 - a) Using information for personal gain only
 - b) Using information without questioning its accuracy
 - c) Using information in a way that respects ethical guidelines and respects the reliability of sources
 - d) Using information without any concern for its origin

8. What role does critical thinking play in safe and responsible use of information sources?
 - a) It encourages blind acceptance of information
 - b) It promotes skepticism and evaluation of information
 - c) It discourages the use of information
 - d) It has no impact on information use
9. Which of the following is an example of an assistive technology used to enhance mobility for individuals with disabilities?
 - a) GPS navigation apps
 - b) Social media platforms
 - c) Video streaming services
 - d) Online shopping websites
10. What type of assistive technology can help individuals with visual impairments access digital content through touch?
 - a) Screen magnification software
 - b) Hearing aids
 - c) Braille displays
 - d) Speech recognition software



Give short answers to the following Short Response Questions (SRQs).

1. What is the primary objective of safe and responsible use of information sources?
2. How would you distinguish between a reliable and an unreliable information source in a real-world scenario?
3. Why is it important to identify the sources of both reliable and unreliable information?
4. Could you describe a situation where you would need to apply the principles of safe and responsible use of information sources?
5. What are some potential consequences of using unreliable information without verifying its credibility?
6. How has computing technology facilitated increased connectivity between individuals and communities, both locally and globally?
7. What are some specific examples of environmental benefits and challenges that have arisen as a result of increased connectivity through computing?
8. In what ways has increased connectivity through computing affected cultural exchange and diversity in the digital age?
9. Can you provide specific examples of sources that are considered reliable and sources that are unreliable?
10. Can you provide examples of initiatives or technologies that have harnessed increased connectivity for positive social or humanitarian impact, and what lessons can we learn from them?



Give long answers to the following Extended Response Questions (ERQs).

1. Determine the fundamental concept regarding the safe and responsible use of information sources. Distinguish reliable information from unreliable sources, as well.
2. Imagine you are researching a controversial topic online. In what ways, would you undertake the encountered information sources; identifying and verifying the reliability. Determine the steps you would take to ensure safe and responsible use of these sources in your research.
3. Argue about the increased connectivity provided by computing technology, facilitating communication between individuals, and what are the key technological advancements driving this phenomenon?
4. Distinguish the environmental consequences of increased connectivity through computing, including the impact on energy consumption and electronic waste, and how can these challenges be addressed?
5. Analyze the ways via which increased connectivity impacts the computing, affecting various cultures and societies. Critically evaluate the potential positive and negative human impacts, such as changes in social behavior, privacy concerns, and the digital divide.



Activity 1

- Make a collection of news items, some of which are false or contain inaccurate information.
- Ask students to read the articles and evaluate each source's reliability using the specified standards.
- Have a class discussion in which the students present their findings and go through the warning signs that they used to spot false news.
- Identify which articles were true and which were false, and talk about the value of conducting fact checks and exercising critical thought when reading the news.



Activity 2

- Presentation and Group Discussion Encourage debate and critical thinking about how computers affects connectedness.
- Divide the class into smaller groups, as instructed.
- Tell each group to talk about the following issues:
- How has the use of computing technology—such as the internet, social media, and smartphones—improved human connectivity?
- What effects has this enhanced connectivity had on the environment? (For instance, energy use and electronic trash)
- What are the human benefits and drawbacks of greater connectivity? (Examples: mental health issues, privacy issues)
- How has computing technology (e.g., the internet, social media, smartphones) increased connectivity among people?



Activity 3

Empathy through Assistive Technologies

In this activity, participants will gain a deeper understanding of the challenges faced by individuals with diverse abilities and the empowering impact of assistive technologies. Each participant will be assigned a simulated impairment (e.g., visual impairment, motor difficulties) and equipped with a basic assistive device. The activity begins with a simple task or game designed to mimic real-world challenges faced by people with disabilities. Participants will navigate the task using their assigned assistive technologies. Following the activity, a reflective discussion will be facilitated to explore the emotions, insights, and frustrations experienced. This immersive experience aims to cultivate empathy, promote awareness, and inspire a commitment to creating more inclusive environments.



Activity 4

Class Discussion on the Influence of Computing on Connectivity

Facilitate class discussion on the impact of computing on connectivity. Divide students into groups, provide research materials on connectedness, and assign topics:

- Benefits of computing technology on human connectivity.
- Environmental consequences of increased connectivity.
- Global impact on cultures and societies.
- Human effects - positive and negative.
- Groups prepare brief presentations summarizing their findings, followed by class-wide discussion.



Teacher's Guide

"The Source: A Critical Thinking Guide to Evaluating Information"

<https://researchtips.sdsu.edu/home/evaluating/>

A comprehensive guide to explore critical thinking skills for information evaluation, along with understanding of various types of sources & biases.



Teacher's Guide

"Five Challenges to Closing the Digital Divide and How to Solve Them"

<https://biarrinetworks.com/insights/five-challenges-to-closing-the-digital-divide-and-how-to-solve-them>

A resource for better understanding about the implications of the digital divide and how to solve them.



Teacher's Guide

"The Impact of Social Media on Mental Health" (American Psychological Association)

<https://www.apa.org/members/content/social-media-research-series>

The American Psychological Association offers a detailed examination of social media's influence on mental health in this resource. It explores the positive facets such as enhancing social connections alongside negative implications like fostering social comparison and isolation. Teachers can address these valuable insights with their students.